

AMERICAN ARTISAN

MAY 1958

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..The Magazine of

RESIDENTIAL AIR CONDITIONING

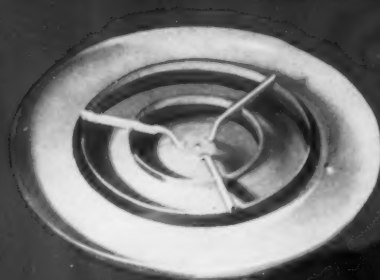
WARM AIR HEATING • SHEET METAL CONTRACTING

TELEPHONE CANVASS is first step in sales campaign using American Artisan's check-lists and standards card to sell complete modernization jobs page 46

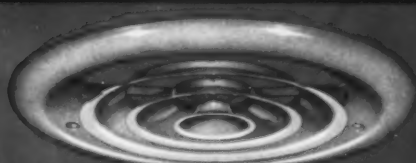


Air Control

**BIG
CAPACITY
CEILING
DIFFUSERS**



GIVE YOU MORE — FROM ANY ANGLE



BROAD OUTER RING — A BUILT-IN ANTI-SMUDGE RING



Complete range of sizes in both square and round models.



NEW "STA-SET" DAMPERS for both models. New concept in design with push-pull rod for positive opening and closing of butterfly valves — special rustproof Nylon brake to hold in any position.

MORE FREE AREA. Round models provide 50% more free area than ordinary diffusers. Square models 40% more.

MORE PERFORMANCE FEATURES. Advanced-design Air Flow rings. Broad anti-smudge outer ring *built-in* — not an extra. Self-sealing gaskets. New STA-SET dampers with push-pull rods for positive opening and closing of butterfly valves — no chains to break.

MORE PROFITABLE TO INSTALL. No more need to buy oversize diffusers. These BIG new Air Control models have plenty of capacity to work perfectly on ducts of the same listed size. Time-saving Adjusto-Stop on damper permits balancing system at diffuser face. Smart appearance and superior performance stop those profit-slicing call-backs.

FREE: New '58 catalog showing complete Air Control line — the registers, grilles and diffusers most likely to be copied. See your jobber or write us.

AIR CONTROL PRODUCTS, INC.

158 Center St., Coopersville, Michigan

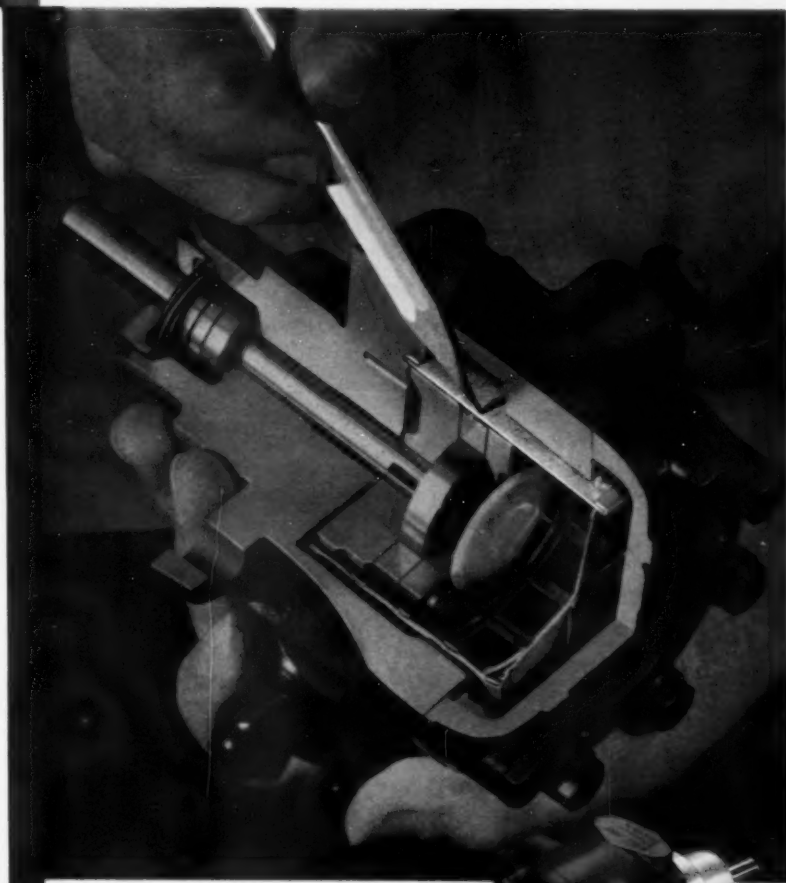
In Canada:

LEIGH METAL PRODUCTS LTD., 72 York St., London, Ontario



Delivers clean oil to the nozzle all season

The monel metal fine-mesh screen of the Sundstrand Fuel Unit strainer excludes all types of dirt, including the line filter fibers . . . rigid, rustproofed steel frame *seats under spring pressure so dirt can't get through to burner nozzle.* The plus-performance factors of the Sundstrand strainer are typical of how Sundstrand Fuel Unit details are designed to bring out and sustain performance advantages of your oil burners . . . to help keep your product operating "as specified." Sundstrand's "first in fuel units" means first in delivering clean oil to the burner, quietly, efficiently, under uniform pressure . . . first in easy installation and simplified servicing . . . first in long, trouble-free performance . . . and first in fuel units specified every year from coast to coast.



Model J—high-pressure, single-stage for single-pipe or two-pipe installation. 3, 6, 10, 14, 20 gph. Three basic Sundstrand models solve all fuel unit problems.



Visit us in Booths 508-512
22nd National Oil Heat and Air Conditioning Exposition

SUNDSTRAND

HYDRAULIC DIVISION

of Sundstrand Machine Tool Co., 2210 Harrison Ave., Rockford, Ill.—Eastern Sales Office: 89 Summit Ave., Summit, N. J. • Made in Canada by John Inglis, Ltd., 14 Strachan Ave., Toronto—Made in Sweden by Sundstrand Hydraulic AB Stockholm.

AMERICAN ARTISAN

MAY 1958

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Founded 1864; Vol. 95 No. 5

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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What it takes to make advertising produce



"Advertising? That's one luxury I can't afford. Ran a big newspaper ad a few months ago and drew blanks. No more for me." Speaking: a heating dealer who hadn't learned that consistency is the first law of effective advertising.

Begin With a Budget

A realistic approach to advertising recognizes it as an investment — much as salesmen's salaries or showroom upkeep. Like any investment, it deserves careful planning if it is to deliver a worth-while return.

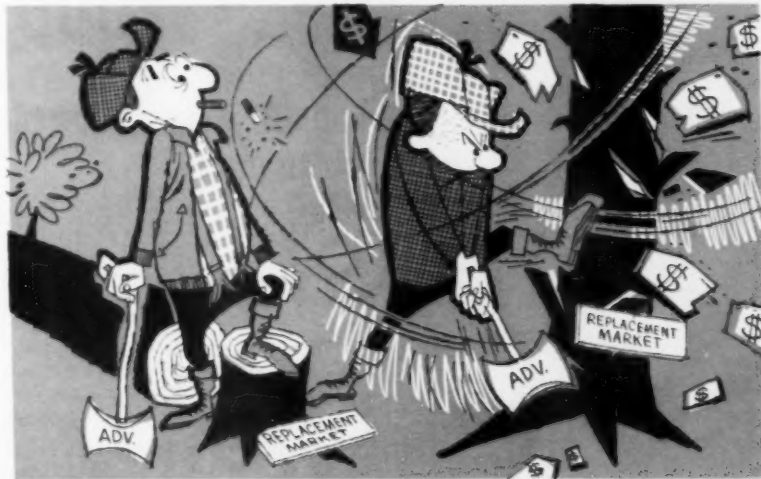
By allotting a fixed portion of total sales (3% is common), the dealer can establish a clear picture of what he can afford in regard to size and frequency in his campaign. Of this amount, at least 75% belongs in a continuing program offering week-in, week-out impact . . . building identity for such time as the prospect needs your services. The remaining 25% should prove an adequate standby for special events, tie-ins and promotions.

Suggestions for "Planting"

No question but what the newspaper is the prime medium for most advertising-minded dealers. But look before you leap into an all-out newspaper campaign. If your customers are concentrated in your immediate area, you may be paying for waste circulation in a large metropolitan daily. A community weekly or another medium may be a better bet. The same holds true for smaller towns or rural areas having no news-

paper. Billboards, movie playlets, handbills or phone book advertising make effective substitutes.

In any case, it will pay to do a thorough job in one medium before jumping to another. *Don't scatter*



"Great tool if it's used right"

your dollars — strive for frequency and consistency.

What to Advertise

You're the best judge of the strong points of your operation as compared to your competitors. Stress them — and keep it up. It's not necessary — in fact, not advisable — to change your advertisement each time.

Or perhaps the quality and prestige of your product is your strongest

asset. Then rely on the manufacturer's advertising mats which give you professional artwork and copy without cost. Finally, remember this in regard to your 25% "special promotion" budget. Sales, discounts and premium offers are great attention-getters. Employ such devices to help level off your limp seasons.

Ready... Aim...

Your Mueller Climatrol representative will gladly offer further information on ad building and programming. He'll also show you the complete Mueller Climatrol package of advertising aids, including materials for every type of local advertising. Or write us direct.

Mueller Climatrol

2030 W. OKLAHOMA AVE., MILWAUKEE 1, WIS.

Western Zone: 1024 Westminster Avenue,
Alhambra, California



DIVISION OF WORTHINGTON CORP.

the editor's notebook

(Continued)

Thumbing Through This Month's Artisan

... we find quotes from letters written by industry members across the country which prove that *American Artisan's Check-Lists Go Over Big* as sales promotion tools. We read capsuled reports on how dealer-contractors and wholesalers have used the heating, air conditioning and sheet metal check-lists from the March American Artisan Modernization Issue successfully in home shows, direct mail, canvassing, service calls and other merchandising vehicles to remind home owners of their modernization needs and thereby increase dealer-contractors' sales volumes.

Condenser

... and we review the refrigerant cycle in a residential air conditioning system to get a clear picture of *What to Expect from a Water Cooled Condenser*. We study pressure-heat diagrams, charts and close-ups of condenser tubes to pinpoint the job done by this component in transferring heat from the refrigeration system to the cooling medium, which in this case, is water. We note the factors which affect this heat transfer and analyze them, through examples of common conditions, to prepare us for the inevitable service jobs to be expected during the approaching cooling season.

Steeple

... we tackle one of the sheet metal problems brought on by modern refinements of traditional architectural features, with a contractor whose *Copper-*



with JOHN WOOD

America's Finest Line of Automatic Heating Equipment and the big new

JOHN WOOD Ac-SELL-erator Sales Plan

*Oil and Gas
Furnaces, Boilers,
Conversion
Burners*

Put the new, big John Wood Ac-SELL-erator Plan to work selling Automatic Heating Equipment for you—automatically. Here's everything you need to get fast sales pick-up in high profit new home and home modernization markets.

The complete John Wood line, with handsome styling, low cost operation and quality reputation, makes the sales that put more money in your pocket—automatically.

Get your sales making Ac-SELL-erator Plan today. Ask your wholesaler or write:

JOHN WOOD COMPANY

Heater and Tank Division

Conshohocken, Pennsylvania • Chicago, Illinois



the editor's notebook

(Continued)

Sheathed Steeples Let the (Recorded) Bells Ring Out. We learn the fabrication techniques used in this specialty item developed to overcome the problems caused by churches' change from bell towers which required piercing the roof for ropes, etc., to loudspeaker systems which transmit recorded bell tones and require special housings to avoid sound distortion. We see a new type of steeple and building architecture arising from the solution of this problem, which opens the door for sheet copper—an old favorite among church people—to complement the decorative steeples and provide maximum protection. We also witness the fabrication and erection of components of a complete steeple, roofing, flashing and rain-carrying equipment job which often results from a bid on installation of a modern steeple.

Basement

... we go further into the interesting problem of heating the basement, introduced last month by Guy Voorhees, with the observation that *Basement Heat Losses Don't Recognize Spring*. Starting with a customer complaint that the basement, which was comfortably warm all winter, suddenly became difficult to heat when the weather became warmer without overheating the rooms above, we analyze the situation and proceed to solve it by applying new and existing information. We realize that the problem is caused by the fact that earth contacting the below-grade walls warms more slowly than the air above and represents a larger proportion of the total heat loss of the



"The tougher the competition.... the MORE I appreciate my **LOCKFORMER**"

"In bidding on any job I have a big advantage over my competitors who can't figure on the labor savings possible with a Lockformer. Instead of tying up two men for 4 to 5 minutes in making 8 feet of Pittsburgh lock, I get 70 feet of lock in 1 minute with my Super Speed Lockformer. I figure that on an average I cut overall fabrication costs in half with my Lockformer. But more important, I can keep my labor estimate the lowest possible and still make my normal profit."

That's typical of the reports that come in from most Lockformer owners. If you still are not using one of them, invest a few hundred dollars today . . . you'll have it back on the first couple of jobs.



One man and a Lockformer makes more Pittsburgh Locks
than sixteen men and eight brakes.



Manufactured by
THE LOCKFORMER COMPANY
4615 W. ROOSEVELT ROAD, CHICAGO 50, ILLINOIS

Send coupon for the complete
Lockformer money-saving story.



THE LOCKFORMER COMPANY
4615 West Roosevelt Road, Chicago 50, Illinois

Please send me latest Lockformer
sheet metal machinery catalog.

Name

Address

City Zone State

the editor's notebook

(Continued)

house; and we study an actual case in a problem house, noting the effects of different conditions. We also find a valuable table of heat losses which are not covered in existing published references.

Use Ultrasonics In Air Cleaning

INDUSTRIAL air cleaning techniques as we know them today may soon become out of date if laboratory investigations now being conducted prove more successful than previous experiments. One of the methods being developed is the use of ultrasonic air waves to separate dust particles from the air and to disperse industrial exhaust fumes. The tests are being conducted by Raymond Marcel Gut Boucher, a French ultrasonic scientist brought to this country by Gulton Industries, Inc. Mr. Boucher has specialized in airborne ultrasonics and has done considerable research on dust collection.

Why Business Owners Should Raise Salaries

ON SEVERAL occasions during 1957 I mentioned that company executives' salaries were rising steadily and that dealer-contractors should be sure to raise their salaries to keep up with the trend of business in general as well as to keep ahead of the continued rise in employee income. An operator of a business is due not only a good return on his capital investment but good compensation for the guidance he provides the business. During 1957, according to a year-end report by American Management Association, American companies increased the compensation paid to their top executives by an average of 5.1

the editor's notebook

(Continued)

percent. This compares with a 5.9 percent increase in top management pay recorded for 1956.

The study analyzes the total compensation paid to some 35,000 executives in more than 3800 companies of all sizes and types in the United States.

A special study of small companies, based on an analysis of 716 firms, shows that top management compensation in the smaller companies varies in direct relation to size and market served.

The amounts paid to individuals in smaller companies also vary with the number of positions at the top management level. Every company has a chief executive but the needs of individual organizations for other positions vary. When the business grows larger than can be supervised by one man, the next position added in 80 percent of the cases is someone to supervise fabricating operations. Generally, in small companies as the number of department heads increase, the average compensation to each officer decreases. However, when a man is responsible for a combination of functions, he is generally paid more than a person responsible for only one function.

Business Outlook Seen In Steel Trends

WE WHO ARE closely related to the steel industry through the use of sheet metal can often get a glimpse of future business trends from the comments of the steel producing industry's spokesmen. I believe that the recent comment by Joseph L. Block, president, Inland Steel Co., brings this point into clear focus. Mr. Block said, "Steel



ODF* TANK GAUGE gives exact reading level of oil in tank *at point of delivery!*

Located outside of building at fill pipe, this new, easy-to-read fraction calibrated, pressure-tight gauge shows the exact level of oil in tank at all times! Saves costly, time consuming trips to basement and unnecessary unreeling of hose... Permits delivery without disturbing customer and eliminates spills as there is a "stop filling" indicator on calibration. Made of weather-proof materials throughout with thermometer indicator securely encased in plastic dome that will not fog or cloud up. No gears, cams, magnets, tapes or intricate mechanisms to get out of order. Write for complete information and low cost unit prices on this modern "delivery point" remote reading gauge today.

"OIL DEALERS' FRIEND"

TELLS WHEN OIL IS NEEDED

... HOW MUCH IS NEEDED

... WHEN TO STOP FILLING

TYPE ODF-1½ Fits 1½" tank opening

TYPE ODF-2 Fits 2" tank opening

- Weather-tight plastic dome calibration assembly.
- Easy-to-read indicator.
- Shows exact reading level at all times.
- Made of quality oil, weather and corrosive resistant materials.
- Durable, heavy-duty construction.
- No complicated mechanism.
- Simple and quick to install.
- Lowest cost remote reading gauge on market.

On guard—24 hours a day

KRUEGER Sentry GAUGES

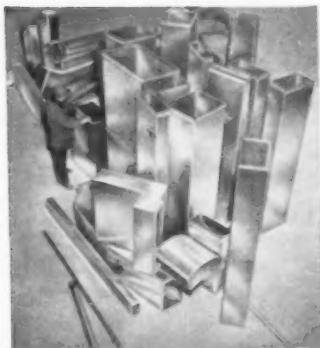
GREEN BAY • WISCONSIN



New York International Airport's new International Arrival Building, partially shown here, is air-conditioned by nine absorption machines located in a central heating and refrigeration plant and...

Building's system was designed to a static pressure of 8" water. SOFTITE Cop-R-Loy used ranged from 16-gage for ducts over 18" in diameter to 22-gage for 8" or less.

5 miles of high-velocity trunk lines made of Wheeling SOFTITE® COP-R-LOY® Sheets



Because sections were made up in Alpine's shop with short lead time on an "as needed" basis, Wheeling's dependable delivery was a big advantage.

Although it's only three stories tall, Idlewild Airport's new 3,200'-long International Arrival Building has the high-velocity air-distribution system normally associated with skyscrapers. It was selected to minimize the space requirements of trunk lines and ducts in the extremely long structure... and to assure the best possible year-round air-conditioning in every part of it.

Using almost 250 tons of 16 to 22 gage Wheeling SOFTITE COP-R-LOY Galvanized Sheets, the lines and ducts were fabricated by the Alpine Sheet Metal & Ventilating Co., Long Island City, New York. The company's president is Mr. Marty Langberg, who says, "We knew this was going to be a tough job, so we used SOFTITE wherever possible. It's more durable, and the coating never chips or cracks."

You, also, can gain by using Wheeling SOFTITE Cop-R-Loy Galvanized Sheets in your own air-handling jobs. Get proof from your nearby Wheeling warehouse or sales office. Wheeling Corrugating Company, Wheeling, West Virginia.



WHEELING CORRUGATING COMPANY—IT'S WHEELING STEEL

IMMEDIATE DELIVERY ON ALL STOCKED ITEMS FROM THESE WAREHOUSES: Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis SALES OFFICES: Atlanta, Houston

the editor's notebook

(Continued)

is not a barometer of business activity, but a thermometer reflecting the current conditions and current attitudes of the great variety of industries which purchase its products."

To prove the validity of his statement, Mr. Block continued: "We have, for some months past, experienced a downward trend in economic activity. It has not, by any measurement I know, been severe. Always, however, these changes are somewhat more pronounced, both on the upside and the downside, in respect to steel than for the national economy as a whole."

'Last Year's Model Is Now Obsolete'

IN TALKING with many dealers about the modernization theme, I brought up the subject of obsolescence. You will of course recognize this term as being applied by the automobile manufacturers to their annual products. They do everything possible to make it appear that last year's model is now obsolete. This is a point that heating, air conditioning and sheet metal dealer-contractors can utilize extensively. We all know that in spite of all possible care taken to make a good heating installation, research data refinements can make a system only a few years old obsolete. An example of this was the practice — standard just a few years ago — of installing low wall registers on inside partition walls. Today the accepted practice is perimeter location for air distribution systems. The old low inside wall distribution system is obsolete. Dealer-contractors calling on modernization prospects who have this type of distribution system can very well point out that

**Build a 2-mile duct
... in one day!**

**MOST POWER
PER DOLLAR**

Milwaukee

**"Pittsburgh-Lock"
HAMMER**

**closes seams at
20 ft. per minute!**

**Save hours of time...
do every job right**

Say goodbye to the only tedious, costly, time-consuming job of fabricating duct work... closing the seams, by using the MILWAUKEE "Pittsburgh-Lock" Hammer. With this powerful, smooth running tool, duct work seams are closed at the rate of 20 feet per minute, or faster. Perfect working balance. Handles 30 to 22 gauge sheet metal... straight runs, inside or outside radii. Saves half the man hours formerly required and does better, neater work... in the shop or on the job!

Ask your MILWAUKEE Distributor to
arrange a demonstration, or write...

Milwaukee Electric Tool Corp.
5352 West State Street • Milwaukee, Wis.

Look
under
"Tools-
Electric"

Find Us Fast
in The
Yellow Pages

AS-9495

the editor's notebook

(Continued)

though it was the best available at the time it was installed, it is now out of date and that the perimeter system is today considered the best available. The salesman could show how the duct system could be redesigned to include new diffusers installed at the exterior wall (the point of greatest heat loss) to provide a modern, up-to-date air distribution system. Careful examination of fuel burning equipment will also bring out some suggestions for improving fuel burning efficiency. Many of the systems installed within the last five years could very easily be termed obsolete when compared with today's methods of providing heat. By bringing the term "obsolescence" into play more and more, I believe that heating and air conditioning dealer-contractors will be able to show the public effectively how to improve the comfort level in their homes.

Get Salesmen to 'Work Harder and Like It'

EVERY dealer-contractor seeks a way whereby he can motivate his salesmen to work harder and like it. W. J. E. Crissy, Personnel Development, Inc., told sales managers attending the National Electrical Manufacturers Association's recent convention:

"Give salesmen the reasons back of changes and directives, and clearly define the scope of each man's selling job.

"The supervisor or manager must set an example for those he expects to motivate toward bigger and more sales. As sales managers we can't afford to say: 'Do as I say.' Our own lives must be models for our salesmen to follow.

"Every sales manager should understand each sales-

AMAZINGLY LOW-PRICE

AUER *"Value-Line"* FLOOR DIFFUSERS

COMPARE

Auer "Value-Line" low-price without loss of quality.

COMPARE

Auer "Value-Line" rugged construction and functional engineering. Heavy gauge face produced in one piece.

COMPARE

Auer "Value-Line" deflection blades engineered to provide "true-perimeter" fan-shaped pattern.

COMPARE

Auer "Value-Line" adjustable, easily controlled, built-in opposed blade damper. Foot or hand operated, can be set to balance with single volume control adjustable screw.



AMAZINGLY LOW PRICE



AMAZINGLY LOW PRICE



AMAZINGLY LOW PRICE



AMAZINGLY LOW PRICE

AUER CHALLENGES THE INDUSTRY !

Auer Register's known quality, coupled with calculated economy makes the new "Value-Line" floor diffuser the "hottest" item available today. Designed for regular and project jobs where price is the important factor and economy a necessity, the "Value-Line" floor diffuser is available in 2 1/4" x 12", 14" lengths; and 4" x 10", 12", 14" lengths.

COMPARE! . . . Auer Value-Line is today's best buy! For complete details and prices, see your Auer Register dealer or write for Bulletin PRF-58.

For further information on residential and commercial heating and air-conditioning registers, write for Auer's complete Register and Grille Catalog.



THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

the editor's notebook

(Continued)

man as an individual — for no two individuals are alike. Make certain that all your salesmen understand what is expected of them, and be a continuing and systematic student of each man's motivations."

Heating and Cooling Sales Group Formed

I'M ALWAYS pleased to hear about new associations being formed, and I believe that an organization such as the one Carlton Smith wrote me about, which is designed primarily to serve heating and air conditioning sales personnel, will fill a long-felt want. Objectives of the new organization — The National Heating and Cooling Sales Association, Inc. — include the promotion of ethical sales practices, improvement of sales methods and establishment of high sales standards. Information about its aims, programs and membership requirements will be available at the National Oil Heat & Air Conditioning Exposition scheduled to be held June 9-12 at the New York City Coliseum.

Consistency Big Factor In Advertising Program

IN REVIEWING the ads for this month's issue I was very pleased to see Mueller-Climate-control point out the advantages of consistency in advertising. The ad takes a realistic approach to the importance of advertising as an investment. It states, "Like any investment, advertising deserves careful planning if it is to produce any worthwhile return."

"By allotting a fixed portion of total sales (3 percent is common), the dealer can establish a clear picture of what he can afford in regard



BIG STEP in Modernizing a Duct System

Seal it with Arno Ductape. Unsealed ducts can't be efficient. A test in a typical home increased air flow at room registers an average 21% — simply by sealing all accessible duct joints with Arno Ductape, which sticks instantly and holds permanently.

Customers like and gladly pay for results like this. It's a low-cost service that makes friends — and profits, too.

If you are not now using Arno Ductape why not make your own test of the income and goodwill opportunities of this service? We'll gladly send a sample roll for demonstration.

Sales Offices

Atlanta—2258 B Cascade Rd. S.W.
Chicago—5577 Northwest Highway
Denver—1376 5th Street
Detroit—12915 W. Eight Mile Road
Fort Worth—2724 Tillar Street
Los Angeles—3225 East 46th Street
Minneapolis—401 Plymouth Ave. North
New York—104 West 17th Street

Arno

ADHESIVE TAPES, INC.

Subsidiary of The Scholl Mfg. Co., Inc.

Arno Adhesive Tapes, Inc., 4110 Ohio Street, Michigan City, Indiana

the editor's notebook

(Continued)

to size and frequency in his campaign. Of this amount, at least 75 percent belongs in a continuing program offering week-in, week-out impact — building identity for such time as the prospect needs his services. The remaining 25 percent should prove an adequate standby for special events, tie-ins and promotions."

Dealer-contractors can benefit most by driving home the company's strong points to build prospect confidence and create preference at the time he is ready to buy. Consistent advertising helps the salesman not only to find prospects but also to convert them into customers in less time by pre-conditioning them to the advantages of owning the equipment and buying it from the salesman.

Sees Bigger Demand for Porcelain Enamel Panels

THE USE of porcelain enamel curtain wall panels should show a continued growth both in the near and distant future, according to J. Fred Ingram, president, Ingram-Richardson Mfg. Co. Mr. Ingram said, "Despite general reports of softness in construction volume, three factors should contribute to steady growth in the porcelain enamel panel's share of the market.

"These factors are: 1) continuing demand by architects and owners for more color in buildings; 2) further expansion of curtain wall construction, aided in some areas by modifications of old fashioned building codes; 3) increasing applications for porcelain enameled aluminum.

Clyde M. Barnes

EDITOR

You can Profit from the
UNSEEN EXTRA VALUE
in Every...



Luxaire

Heating . . . Cooling Air Conditioning Unit

Starting with the attractive appearance that distinguishes every Luxaire Heating and Air Conditioning Unit, Luxaire gives you more of the desirable qualities that you can see and feel — heavier construction, ingenious installation features and trouble-free performance!

The extra value with Luxaire is that you can have this excellence at prices that are competitive with those for cheaply constructed units!

If you want to meet price competition with excellence, Luxaire has solved your problem of choosing between a low price and an excellent product. Luxaire gives you both!

See your Luxaire
jobber, today!



SPACES 620,
622, 719, 721



2, 3 or 5 Ton
Air or
Water Cooled
Gas or
Oil Fired
Combination
Year 'Round
Air Conditioner

2 or 3 Ton
Air or
Water Cooled
Gas or
Oil Fired
Counterflow
Year 'Round
Air Conditioner



Air Cooled Add-On Summer
Air Conditioning Units.
2, 3 and 5 H.P. Compressor-
Condenser Assemblies available
with Duct or Plenum Type
Cooling Coils.



Water Cooled
Add-On
Summer Air
Conditioning
Units. 3 and
5 Tons.



Basement
Type Winter
Air Conditioning
Units. Burn either
Gas or Oil.



Counterflow
Units and
Utility Units.
Burn either
Gas or Oil.



Gravity
Furnaces.
Burn either
Gas or Oil.

Sturdier Construction Excellent Performance Instant Eye Appeal



Gas Unit
Heaters
5 Sizes.



Horizontal
Furnaces.
4 Oil Burning
Sizes
4 Gas Burning
Sizes



Gas Duct
Furnaces.
4 Sizes.



Gas
Conversion
Burners.

Gas Fired and Oil Fired Furnaces . . . Completely Assembled and Wired

Ready for operation when connected to fuel line, ducts, electrical supply and thermostat! Gas Fired — 75,000, 100,000, 125,000, and 150,000 Btu input with 16 Gauge Heating Element! Oil Fired — 78,400 and 112,000 Btu at Bonnet! Attractive! Compact! High Static Approvals for Cooling! Winter Air Conditioners and Counterflow Units!



Oil Winter
Air
Conditioner
showing
Refractory
Firebox.



Winter Air
Conditioner with
Plenum Type
Cooling Coil.

THE **Luxaire** C. A. OLSEN MANUFACTURING COMPANY . . ELYRIA, OHIO
HEATING & AIR CONDITIONING UNITS

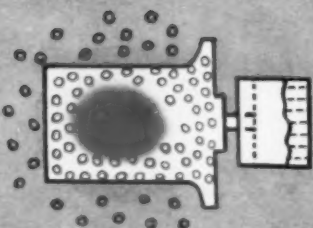
CUT NUISANCE



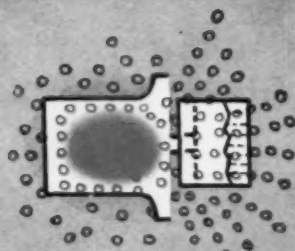
SERVICE CALLS!

General Electric's oil burner motor with "Air-Wall" trips out less, lasts longer—cuts inventory 50% and makes installation easy

NOW you get positive heat removal . . .



OLD-STYLE BURNER MOTOR

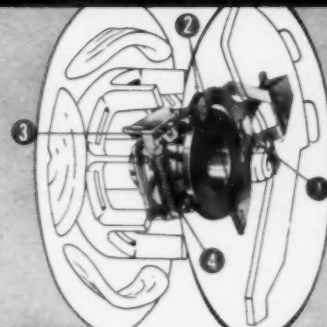


G-E "AIR WALL" MOTOR

Old Style oil burner motors get rid of heat slowly. This slow method of heat removal frequently causes trip-outs which require time-consuming service calls—waste your servicemen's time and cost you money.

General Electric's "Air-Wall" motor transmits heat swiftly. Trip-outs are rare even in hot, cramped quarters. An invisible "air-wall" stops entry of dirt. Motor meets all Underwriters' Laboratory requirements for totally enclosed designs.

Get longer switch life



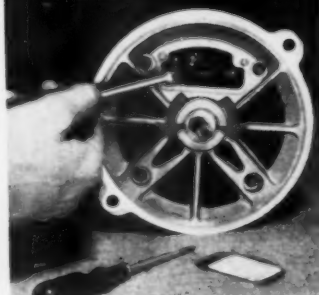
3½ Million Operations (equivalent to 100 years' use) have been obtained with G.E.'s start switch, featuring: 1. Silver contacts; 2. Textolite® wear pads; 3. Knife-edge hinging, no pins; 4. Positive snap-action.

Get longer lubrication life



4-Year Factory Lubrication practically eliminates reoiling nuisance. Specially designed lubrication system of General Electric's oil burner motor, with 50% more oil, continuously bathes all bearing surfaces with filtered oil.

Cut inventory in half



Less Inventory is required. All G-E burner motors feature interchangeable rotation. Servicemen can easily change any motor to get clockwise or counterclockwise rotation simply by switching leads. Only minimum service stocks are needed.

Get easy installation



Easy Handling and installation are possible even in tight places because G-E motor is over 50% lighter than older designs. For example, the 1/12-hp motor weighs only 10 pounds, yet outperforms heavier motors.

TO GET THESE ADVANTAGES. . . Specify General Electric motors on your next heating equipment order.
GENERAL ELECTRIC COMPANY, SCHENECTADY 5, NEW YORK.

*Registered Trade-mark of General Electric Company.

702-52

GENERAL  ELECTRIC

STANDARDIZE ON HONEYWELL
FOR ALL YOUR
RESIDENTIAL AIR CONDITIONING
CONTROL NEEDS

Now, a new line of

Terminals, reset button and differential are together, needs access from only one side. →

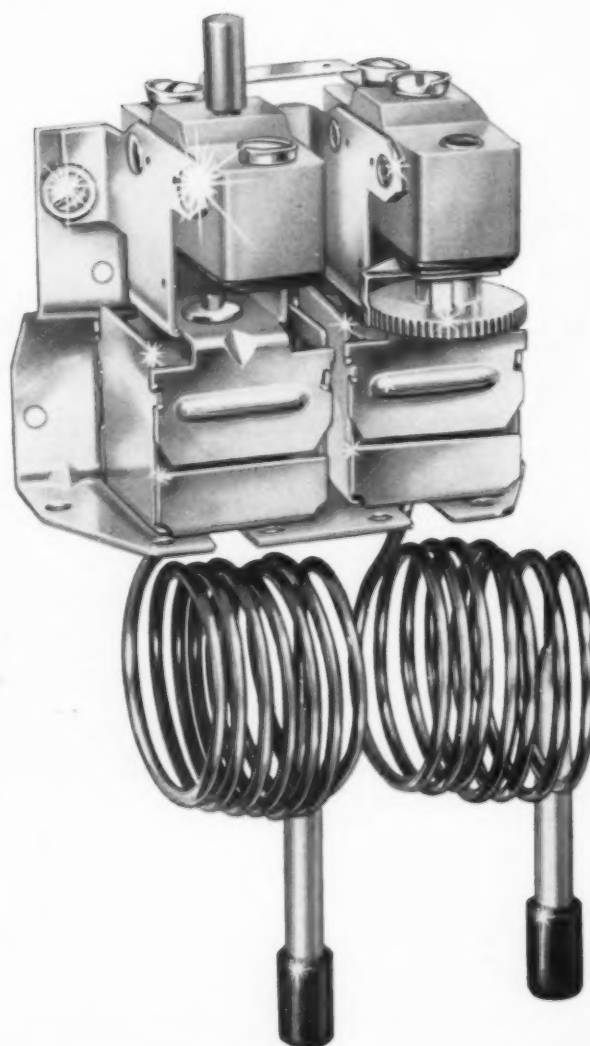
Trouble-free—famous, long-lasting MICRO SWITCH enclosed switch seals out dirt, lint and moisture. →

No tweezer parts—a simple, direct-acting switch mechanism. No pivots, levers or springs. →

Simple, differential adjustment—knurled differential adjustment knob can be operated by hand without use of tools. →

Stainless-steel diaphragm—designed for precision action and lasting operation . . . unaffected by corrosive atmosphere. →

One-piece capillary—eliminates the possibility of leaks or weak spots, normally a problem at soldered joints. →



pressure controls

HONEYWELL PRESSURETROL*— COMPACT, DEPENDABLE— 11 MODELS TO CHOOSE FROM

This new Honeywell P432 high-low Pressuretrol is compact and functionally designed to meet the needs of today's neat, well integrated control panels.

You can choose the P432—or any of Honeywell's 11 Pressuretrol models to meet the demands of every type of residential air conditioning equipment and a wide range of other refrigeration applications. These Pressuretrols are available as separate high, separate low or combination high-low devices. Both high and low pressure controls can be ordered with manual reset. Low pressure controls can be

*Trademark

specified with adjustable or fixed differential.

Honeywell Pressuretrols can be ordered as part of a panel or purchased separately.

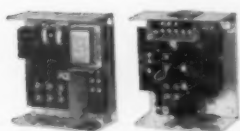
Now you can standardize on pressure controls designed specifically for packaged air conditioning units, made, matched and backed by Honeywell.

Get complete information on Honeywell's line of Pressuretrols and other air conditioning controls. Call your local Honeywell office or write Minneapolis-Honeywell, Dept. AA-5-51, Minneapolis 8, Minnesota.

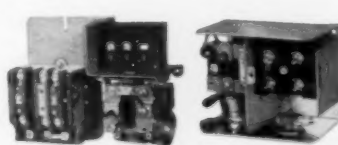
These control panels—for use with Honeywell Pressuretrols—
offer you maximum flexibility



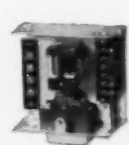
For self-contained units—W B212 panel with pressure control. For larger packaged units.



For attic type units—W429 panel for self-contained, add-on, one-stage cooling units. W430 panel for two-stage, self-contained cooling units (time delay available).



For remote condensing units—(These Honeywell Panels contain motor starter and pressure control). W431 panel for units up to 7½ tons. W435 panel for remote 2-ton and some 3-ton condensing units.



Evaporator Sequencing Panel—W226, designed for use with W431 or W435.

Honeywell



First in Controls



MILCOR'S COMPLETE LINE of Rain-carrying Accessories

simplifies buying, warehousing,
record-keeping, installation



Call your jobber for prices, or write the nearest branch listed below.

MILCOR®

Rain-carrying Equipment

INLAND STEEL PRODUCTS COMPANY

Dept. E, 4024 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN
ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT
KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS



ASHAE to Cover Thermal Insulation, Condensing Methods at June Meeting

NEW YORK CITY — The semi-annual meeting of the American Society of Heating and Air-Conditioning Engineers will be held June 23-25 at the Pick-Niccollet Hotel, Minneapolis, Minn. Since the 54th annual meeting of the American Society of Refrigerating Engineers will be held on the same dates, the two societies plan

to hold several joint sessions and special events. These include a symposium on thermal insulation, consisting of discussions of reflected and bulk insulation, vapor problems in thermal insulation, and surfacings for glass fiber and foam thermal insulations; a symposium on condensing methods which will cover cooling tower design and performance, evaporative condensers and air-cooled condensers; and conferences on air conditioning and education.

Study Present and Potential Uses of Lead in Building

NEW YORK CITY — The Lead Industries Association has retained Skidmore, Owings and Merrill, architects and engineers, to make a study of present and potential uses of lead in building construction. According to Robert L. Ziegfeld, association secretary, this is another important step by the lead industry in its intensive program to realize the full possibilities of lead under modern conditions. "Lead has long enjoyed an important place in construction," he said. "However, building methods and designs are constantly changing and there are great possibilities for newer lead products, as well as the older ones, in today's construction. For example, leaded porcelain enameled aluminum is just one comparatively new product that seems to have an important place in the construction of the future."

Cites Rapid Rise in Private Pension Plans

WASHINGTON, D. C. — The Chamber of Commerce of the United States reports that private employee pensions plans increased from 720 to 23,000 during the period 1930 to 1956. In the same period, the total of group life insurance policies rose from 19,000 to 106,000.

Says U. S. Needs More Sheet Metal Apprentices

ATLANTIC CITY, N. J. — The problem of apprenticeship training was one of the chief topics of discussion at the recent AFL-CIO Metal Trades Convention held in Atlantic City. Both Secretary of Labor James P. Mitchell and his director of apprentice service, Edward H. Goshen, discussed the problem.

Mr. Mitchell pointed out the needs of a rapidly expanding population and said that we will need more and more men of skill and fewer and fewer, proportionately, of the unskilled variety.

Mr. Goshen presented facts and figures on the entire apprenticeship problem. After pointing out the need for a steady flow of apprentices, he said, "Our past experience with shortages of skilled craftsmen should be an ever-present reminder that we must not let this happen again. It is even more important that we develop the skills of our people than it is that we perfect our machines, for the machines cannot produce without the intelligence and skill of those who make them, operate them, and maintain them. Through the development of the skills of our people, America

American Artisan Standards Awarded Editorial Prize

NEW YORK CITY — *Standards for Rating Heating Systems*, published by American Artisan in July 1957, has been singled out as an outstanding contribution to the warm air heating industry. This was announced on May 1 at the annual luncheon of the Associated Business Publications, when winners of the Jesse H. Neal Editorial Achievement Awards were made known. Clyde M. Barnes, editor, American Artisan, accepted the plaque on behalf of the Keeney Publishing Co.'s staff.

Jesse H. Neal awards are made annually to magazines that can qualify for membership in the Associated Business Publications. (Membership is limited to magazines such as American Artisan which serve 100 percent paid subscribers.) The awards are based on editorial excellence and contribution to the field or industry served. All entries must have been published originally in the pages of a standard issue of the publication.

Standards for Rating Heating Systems is the series of articles and the card made available to American Artisan readers to aid them in selling the benefits of warm air heating to the public and to provide a basis for the selling price asked by dealer-contractors that includes a fair profit to the installer for his technical skill.

has grown strong, and must remain strong."

He reported that the growing number of apprentice completions in the metal trades is an improvement over the volume of past years. He said that in 1955 there were 33,812 apprentices in the metal trades; in 1956 there were 33,882; and in 1957 there were 31,107. The number of completions in the last few years, according to Mr. Goshen, were: 1954, 4535; 1955, 4947; and 1956, 5850.

TIRE

OF LOSING SALES BECAUSE YOUR LINE DOESN'T HAVE THE RIGHT
UNITS AT THE RIGHT PRICE? THEN READ THE RIGHT HAND PAGE...



AMAZING NEW AUTOMATIC HEAT PUMP

Two, three and five ton sizes. The three and five ton units have two compressors, two stage control. Heats and cools without fumes, fire, fuel or water! Compact, easy to install, completely self-contained. Most promising and profitable unit you ever sold.



GAS COOLING UNIT

Two, three and five ton units. Easy installations; no mess, can be done in a few hours. Minimum space needs, goes in attic, basement, anywhere! Power Reserve assures best performance, long life, lasting profits!



BUILD A BETTER BUSINESS WITH TYPHOON

The most complete line of residential packaged air conditioners in the industry! A size, a model, a price for every job you bid for! Including two, three and five ton true heat pumps and two, three and five ton attic units. And the most diversified range of furnaces, using gas or oil, from 75,000 to 200,000 BTU. Three and five ton split systems with cooling coils to exactly match Typhoon furnaces. For a sales "extra", Typhoon features "Even-Temp", an innovation to gear the firing rate to the weather and automatically change air volume between summer and winter. A money saver, a comfort maker that helps you close sales. Typhoon "Power Reserve" and superior components help you keep the profits you make on every sale by delivering highest quality performance without excessive costly service. Home air conditioning grows bigger every day, you should be growing with it. Write today for full information on a Typhoon franchise and Typhoon's wide commercial air conditioning line, too.

TYPHOON
DIVISION OF HUPP CORPORATION

Typhoon Air Conditioning Company
505 Carroll Street, Brooklyn 15, N. Y.

☐ Please send me full product
information on the Typhoon line.

Name _____

Address _____

City _____ Zone _____ State _____

Award Goes to Janitrol for 1957 Advertising Campaign

NEW YORK CITY — The Janitrol Heating & Air Conditioning Div., Surface Combustion Corp., recently won an Associated Business Publications "Award of Merit" for its series of two-page ads published during 1957 in American Artisan and other magazines. Business advertising awards are made each year by ABP in recognition of outstanding advertising campaigns published in business magazines. Presentation of the award was made at an ABP luncheon held on April 14 in New York City.

Objective of the Janitrol campaign was to inform dealer-contractors of the division's complete merchandising program, which includes local level promotion aimed at the modernization market, builder promotion designed to help dealer-contractors increase their share of the new house market, and a customer finance plan developed to enable families to purchase heating and cooling on an installment basis.



P. A. RYAN (left), Janitrol manager of advertising and sales promotion, represented the division at award luncheon. William K. Beard, Jr., (center), ABP president, congratulates Dale J. Alcorn, vice president, Beeson-Reichert, Inc., Janitrol advertising agency

Commenting on the Janitrol entry, ABP judges noted that the ads "make excellent use of color . . . stress profit motive . . . emphasize to dealers the value of the company's merchandising program . . . feature good seasonal promotion."

SBA Action Means More Loans For Small Businesses

WASHINGTON, D. C. — A new schedule of reduced charges to banks for participation in SBA loans to small businesses became effective April 1. According to Wendell B. Barnes, administrator of the Small Business Administration and chairman of the agency's Loan Policy Board, the new rates apply not only to new participation loans but also to those already on the books. The new rates were made possible by action of the Loan Policy Board in reducing by 50 percent the participation fee charged by SBA on its share of deferred participation loans. In announcing the reduced charges, Mr. Barnes said: "I am confident that the new schedule of fees will provide additional opportunities for small firms."

FHA Plan Speeds Home Financing

WASHINGTON, D. C. — To make the benefits of FHA financing available to a greater number of home owners, the Federal Housing Administration has expanded its Certified Agency home mortgage program which was started last November on an experimental basis in seven selected areas. The program, designed to eliminate red tape and processing delays in getting houses built and financed, relies to a great extent on local institutions and local people instead of centralizing all processing in FHA district offices. Experience gained by FHA, according to FHA Commissioner Norman P. Mason, has shown that applications for mortgage insurance under this plan can be processed in four to six days.

Previously limited to towns of less than 15,000 population in parts of New York, Pennsylvania, Illinois and Michigan as well as small towns in the states of North Carolina, Kansas and Arizona, the plan now extends to smaller communities in Alabama, Maine and the entire states of Illinois and Michigan. In addition, all cities in Oregon except Portland and all cities in eastern Pennsylvania except Philadelphia are eligible. In Montana and Colorado, the program is to get its first test in metropolitan areas and will be available on a statewide basis.

February Applications For FHA Loans Up 70%

WASHINGTON, D. C. — February applications for FHA-insured loans for newly constructed homes were 70 percent higher than in February 1957, according to FHA Commissioner Norman P. Mason. Mr. Mason said that the applications covering 20,600 units in new one to four family homes were up 20 percent over the January volume.

(More news on page 27)

Move to Prevent Pension Abuses

WASHINGTON, D. C. — Within the last two years, six major industrial states have passed legislation to prevent pension and welfare fund abuses, according to the Chamber of Commerce of the United States. These laws, requiring registration and reports, apply to the full plan, not merely to data about participants employed within a state. They cover a majority of interstate plans.

Now before the U. S. Congress is proposal S.2888, which would require financial disclosure for employer-administered plans in which no corruption has been found. All abuses disclosed have been in the eight percent which is jointly administered and union dominated.

the why*
behind a
big decision



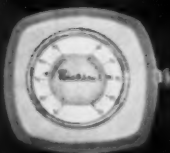
From its modern \$10,000,000.00 plant in Long Beach...

Robertshaw enters the manufacture of Central Heating Controls!



* **Exacting Quality Control**—a proved factor in the successful development and production of millions of dependable water and space heater controls.

Unitrol 110—the standard of the water heater industry... more than 3,000,000 controls produced and sold with less than one-half of one percent returns.



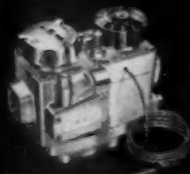
TR Wall Thermostat—dependable comfort control for the home "fashion right of home" in any decor!



FAL 400 Fan & Limit Control—Compact, easy to install... Fan & Limit Control settings adjustable.

* **Exacting Quality Control**—now lends its technique to the manufacture of Central Heating Controls and Accessories!

Unitrol 1000—Interchangeable cartridges convert basic unit from manual to automatic or wall thermostat operation.



29 Pilot and Super-Clad Thermocouple—An unbeatable combination for positive, safe operation.



Dependable Robertshaw controls are advertised nationally to your customers in *Good Housekeeping*, *American Home*, *Sunset* and *Saturday Evening Post*.

CONTACT:



Robertshaw-Fulton

CONTROLS COMPANY

GRAYSON CONTROLS DIVISION, LONG BEACH, CALIFORNIA

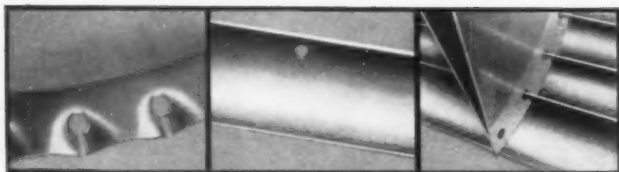
ALL WORK

and no play



MAKES
PRESLOK[®]
a good buy

**Exclusive LAU locking method
eliminates blade play at high speeds,
cuts blower noise**



Circumference of both center discs is key-hole punched to accommodate blade aperture.

Blades are punched to leave strong metal support between aperture and blade edge.

Two fingers on each center disc slip into blade aperture and are pressed together in locking position.

LAU Preslok construction (so exclusive it's patented) eliminates the problems inherent in high RPM operation—blade play, bowing, and noisy operation. Why? Because Preslok construction gives both center discs a total of four positive mechanical grips on each blade. It works so well that we guarantee increased operating speed maximums of at least 50% over previous wheels, size for size.

Preslok wheels are available from factory stock in 9 sizes from 9 thru 18 inches. Isn't it time you checked into Preslok—and LAU Blowers? LAU BLOWER COMPANY, 2027 Home Ave., Dayton 7, Ohio. Other plants at Irwindale, California and Kitchener, Ontario.

Here's the man to call...



Cincinnati 30, Ohio
Don G. Jensen
6422 Glade Avenue
Cleveland 24, Ohio
Charles C. Millev
1561 Woodrow Avenue
Cranford, New Jersey
E. C. Wolford
11 English Village

Dearborn, Michigan
J. B. Wallace
9 Byfield Lane
Denver 2, Colorado
Ben T. Clark
1421 Court Place
Elmwood Park 35, Illinois
William J. Lohrey
2047 77th Avenue

Kansas City 14, Missouri
Charles L. Sigman
8906 Holly Avenue
Pasadena 8, California
G. R. Mergenthaler
495 Cliff Drive
Prairie Village 15, Kansas
Victor Stewart
7112 Buena Vista

Seattle 55, Washington
William M. Peistrup
19246 Lago Place
Syracuse, New York
Henry Seebach
560 Allen Street
York, Pennsylvania
E. F. Humphrey
327 Lambeth Drive

The BIG Wheel in air moving

NEW!



Here's two sensational
NEW profit-makers for
the smaller or project home

You'll agree that these new International of Utica units are the most flexible units ever designed and ideal for project installations. The Gas and Oil Hi-Boys can quickly become Lo-Boys by the addition of an optional return air cabinet which fits either side or the rear. Just look at all the extra features:

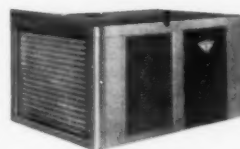
- Seven models—80,000 and 100,000 BTU gas input
85,000 to 112,000 BTU oil output
- Readily adaptable for summer cooling
- Large air filters
- Steel cabinet—baked gray hammertone enamel finish
- Compact for close clearance installations

IT'S A HI-BOY NOW IT'S A LO-BOY

Here's another profit-maker . . .

HORIZONTAL SELF-CONTAINED COOLING UNIT for small homes

Model AS-208 . . . air-cooled with 2-ton capacity. Provides cross-ventilation of attic to gain 1/2 ton of extra cooling at no additional cost. Also ideal for crawl space or transom installations.



We have a factory-trained representative NEAR you to give you the whole story. Just drop us a line and he will call.
International Heater Company, Utica, New York.



INTERNATIONAL OF UTICA

MORE in '58

- More distributor help
- More confidence
- More units
- More promotion help

JOBBERS DEALERS HERE'S HOW YOU BENEFIT FROM LIMA STANDARDIZATION



Lima makes only the registers that you need most often . . . and makes them BETTER with stronger construction, greater beauty and special features for outstanding performance. More and more Jobbers and Dealers find Lima's standardized line answers their needs better . . . at no extra cost

FOR THE JOBBER LIMA STANDARDIZATION:

- SIMPLIFIES INVENTORY
- CUTS CAPITAL INVESTMENT
- SPEEDS TURNOVER
- ELIMINATES OBSOLESCENCE
- REDUCES WAREHOUSING
- IMPROVES SERVICE

FOR THE DEALER LIMA STANDARDIZATION:

- ASSURES AVAILABILITY . . . All sizes of every model are supplied promptly . . . even during peak of heating season
- INCREASES CUSTOMER SATISFACTION . . . puts extra quality into the product at no extra cost
- ENCOURAGES RE-ORDERS . . . exclusive Lima features simplify installation, adjustment and balancing. Saves job time and cost.

SAY

Lima

REGISTER COMPANY • LIMA, OHIO

1786 N. Cable Rd., sold exclusively through wholesalers and manufacturers



AGC Sees 6% Rise In Home Building

DALLAS, TEX. — Building construction volume is expected to increase about 5 percent this year over 1957, exclusive of military building construction, according to a report presented at the 39th annual convention of the Associated General Contractors of America. Welton A. Snow, manager of the association's Building Contractors' Div., said private residential construction is expected to increase about 6 percent.

Major General A. M. Minton, the air force's director of installations, told the contractors that air force construction awards in 1958 "will be about double those of any other year since World War II." General Minton said that in addition to requirements for operational structures, the air force has future requirements for the construction of replacements for World War II buildings to house its personnel. Air force housing requirements are about 50,000 new units within the United States, according to General Minton.

Building Expenditures Up for First Quarter

WASHINGTON, D. C. — The dollar value of new construction put in place rose in March to approximately \$3.4 billion, bringing the first quarter total to \$9.7 billion—a little above the total for the first quarter of 1957—according to preliminary estimates prepared jointly by the U. S. Departments of Commerce and Labor.

ASHAE Discusses Control Problems

CLEVELAND — An all-industry conference on control sponsored by the American Society of Heating and Air-Conditioning Engineers was held at the society's research laboratory in Cleveland on May 14. Purpose of

Winning Apprentices, Joint Committees Receive Awards in Ninth Annual Contest

CHICAGO — The National Joint Apprenticeship and Training Committee for the Sheet Metal Industry recently announced winners in the ninth annual National Joint Apprentice Award Contest. Each winner received a certificate of award as well as a cash prize. According to Joseph J. Kaberlein, secretary of the committee, some 2000 sets of problems were distributed to local committees in all parts of the United States and Canada for re-distribution to apprentices in the first, second, third and fourth year categories. Each committee conducted a local contest and entered four first place winners to compete in the national contest. Winners are as follows:

First Year—Ernest Hensler, Seattle, first award; Clifford M. Crowley, Everett, Wash., second award; Jerome J. Meyers, Minneapolis, third.

Second Year—Duane P. Herdlick, Canton, O., first; Donald Sykes, Collinsville, Ill., second; Edward G. Sellnow, Jr., Voorheesville, N. Y., third.

Third Year—Glen McDaniel, Grand Rapids, Mich., first; Gilbert

A. Carrillo, Los Angeles, second; John E. Sickie, Cleveland, third.

Fourth Year—Arthur D. Gagnier, St. Paul, Minn., first; Peter L. Gust, Milwaukee, second; William Vaughn, Tulsa, Okla., third.

The Sheet Metal Workers Joint Apprenticeship Committee of Los Angeles was selected winner of the plaque award for the greatest contribution to the training and guidance of apprentices during the past year. Honorable mention went to the Milwaukee Area Joint Apprenticeship and Training Committee for its achievements in apprentice training during 1957.

ASHAE Publishes 1958 Guide

NEW YORK CITY — The Heating Ventilating Air Conditioning Guide 1958 (36th edition) is now available from the American Society of Heating and Air-Conditioning Engineers. Revisions and additions made since the previous edition include:

1. Addition of both a description and a design method for high velocity air duct systems

2. An enlarged section on the heat pump

3. New information on exhaust hood performance and design for hot and cold processes

4. New data on heat gain through glass block used in skylights, requirements for shading glass, and basic principles involved in calculating heat flow through glass areas

5. An enlarged section on performance and testing of air cleaners

6. Extension of list of allowable concentrations of air contaminants

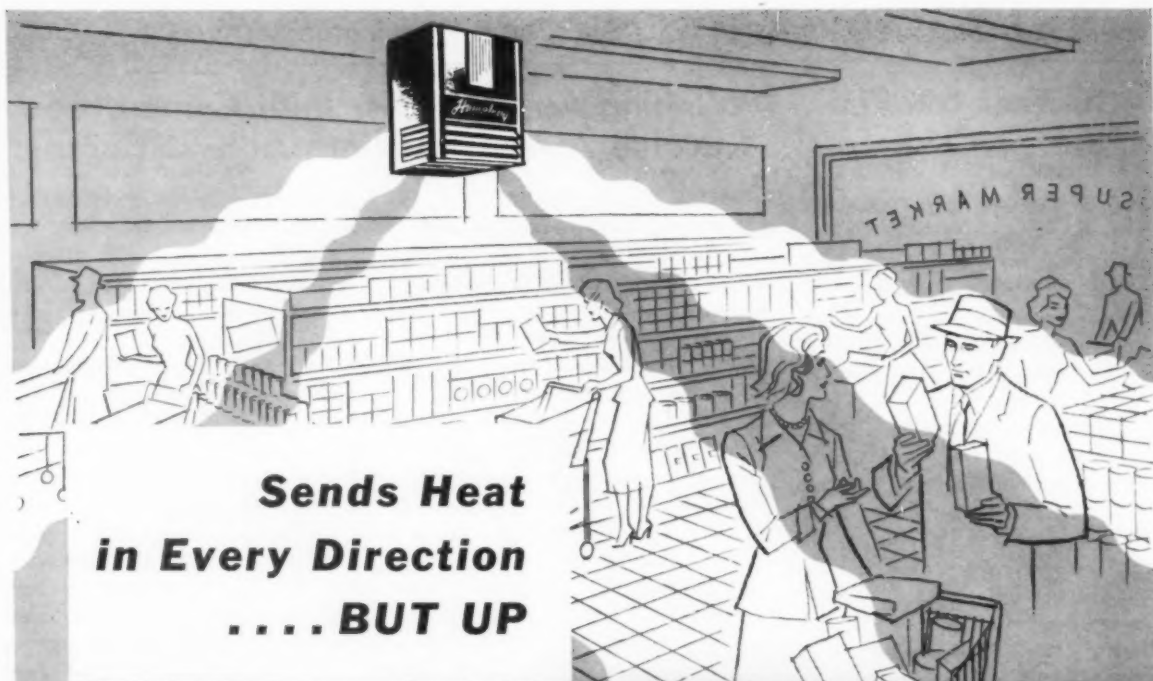
7. An increased number of codes and standards

8. Extension of data on heavy fuel oils and their use, with preheating, in automatic fuel burning equipment.

ARI Rates Room Units in Btu's

WASHINGTON, D.C. — The Air-Conditioning and Refrigeration Institute has published ratings for room air conditioner units expressed in terms of Btu's per hour. The Btu rating program was set up by the room air conditioner section of ARI in an effort to clear up confusion in the public mind on such terms as "horsepower" and "tons" which have previously been used to rate capacity.

the meeting was to consider problems of control in air conditioning systems. A panel of six engineers presented viewpoints of the manufacturer, the design engineer or consultant, the wholesaler, the dealer-contractor and user.



**Sends Heat
in Every Direction
.... BUT UP**

**THE
NEW**

Humphrey

**Multi-
Directional**
AUTOMATIC GAS
UNIT HEATER



Want to direct the warm air straight down . . . sideways . . . even backward, as well as forward? Install new Humphrey Multi-Directional Unit Heaters and you can set up any pattern of heat flow you want, right on the job at the time of installation! New top-mounted fan blows *straight down*. New interchangeable and optional louvers with adjustable pitch permit any desired combination of front, bottom, or side openings. Eleven sizes — 60,000 to 270,000 btu. Write for new catalog bulletin and Application Handbook.

GENERAL GAS LIGHT COMPANY
KALAMAZOO, MICHIGAN

.....
MOST ADAPTABLE UNIT HEATER EVER DESIGNED



**FRONT
DISCHARGE**



**FRONT AND
BOTTOM
DISCHARGE**



**BOTTOM
DISCHARGE**

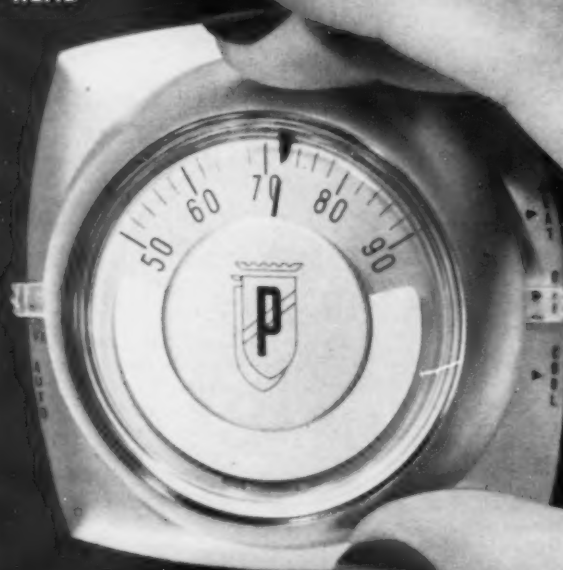


**SIDES AND
BOTTOM
DISCHARGE**



**SIDES AND
FRONT
DISCHARGE**

JUST DIAL THE RIM...
EASIEST-TO-SET...
EASIEST-TO-READ



USE PENN'S NEW RIMSET THERMOSTAT TO HELP SELL HEATING-COOLING JOBS

No squinting

Extra large stationary dial face with big numerals make RIMSET today's easiest-to-read thermostat.



No leveling

Installation is easier and accurate operation is assured because leveling is not necessary.



No chattering

Unlike other thermostats, RIMSET does not chatter to cause "on-off" operation when vibration occurs.



There's nothing else like it... it has accuracy, dependability, extra convenience and blendable beauty

You get extra sales power at no extra cost with Penn's RIMSET thermostat. It has features your customers want and can't get with any other thermostat. It is easier to set... you simply dial the rim... the scale remains stationary and is always "easiest-to-read". It has snap-acting contacts to eliminate "on-off" operation caused by vibration. And, it has modern styling to blend with any room decor.

With the Penn RIMSET thermostat unit, various interchangeable sub-bases are available for 12 different heating and cooling jobs! On your next installation, use Penn's RIMSET... the thermostat that helps close sales.

PENN CONTROLS, INC. Goshen, Indiana

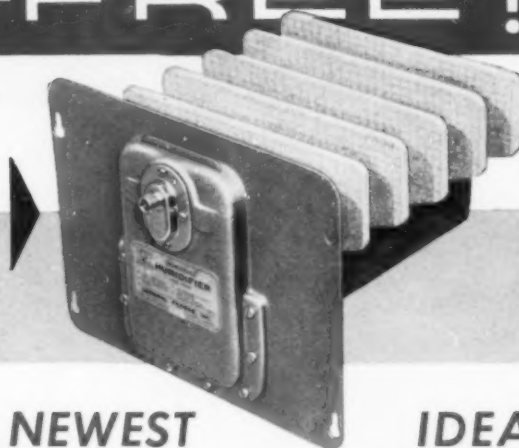
EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

CLOG-FREE!

GENERAL "800" HUMIDIFIER

Won't STICK
Won't OVERFLOW



Installed in Minutes! Pre-fabricated, one-piece unit with **FEWER PARTS** means easier installations and less service. Labor-saving template for drilling mounting holes and cutting plenum makes every installation profitable.

NEWEST IDEA IN HOME HUMIDIFICATION!

SIMPLE! The Model "800" needs no float . . . requires no tricky pan leveling. A simple, long wearing neoprene diaphragm, chrome-plated valve, and enclosed valve seat prevent any sticking or clogging — can't overflow!

COMPACT! Entire unit (except cold water connection) fits inside the furnace plenum. Just lift nameplate to check evaporation, water level and plates!

AUTOMATIC! Auto-Valve operates solely by pressure of water in the evaporating pan. Whenever the water level falls below a predetermined point, the valve **OPENS**. After the water level is restored, the valve **CLOSES** automatically.

SEE OUR SPECIAL DEALER INCENTIVE OFFER!

GENERAL FUEL OIL FILTERS



**Prevent Clogged
Nozzles . . .
Stretch Heating
Dollars!**

MODEL 1A-25A

For average homes and space heaters, this popular model has the Wool Felt "Step Design" Cartridge for greatest usable filtering area and finest filtration. Corrosion-proof plastic finish. All-metal construction.

CLEAN RIGHT SOOT REMOVER

Removes up to a 1/8" soot layer in 2-5 minutes through normal, no-flash burning action. Non-corrosive. Clean Right can cut heating bills up to 25%! For any stove or furnace.



MODEL 2A-700A



For large homes. Features Wool Felt "Step Design" Cartridge. Leak-proof design. Plastic finish.

MODEL 2A-300



Largest capacity, deluxe model with metal-encased, "depth-type" cartridge . . . screw-type steel handle.

MODEL 2A-17A



For heavy fuel oils and lubricating and hydraulic oils. Washable Metal cartridge (30, 60, 100, 150, or 200 mesh). Corrosion-proof plastic finish.

MODEL 90 WATER TRAP



Removes water from oil before it reaches burner; protects filter, nozzle, pump. Interchangeable 3/4" inlet-outlet and 3/4" threaded brass drain plug.



SEE YOUR JOBBER OR WRITE FOR FULL DETAILS

GENERAL FILTERS, INC.

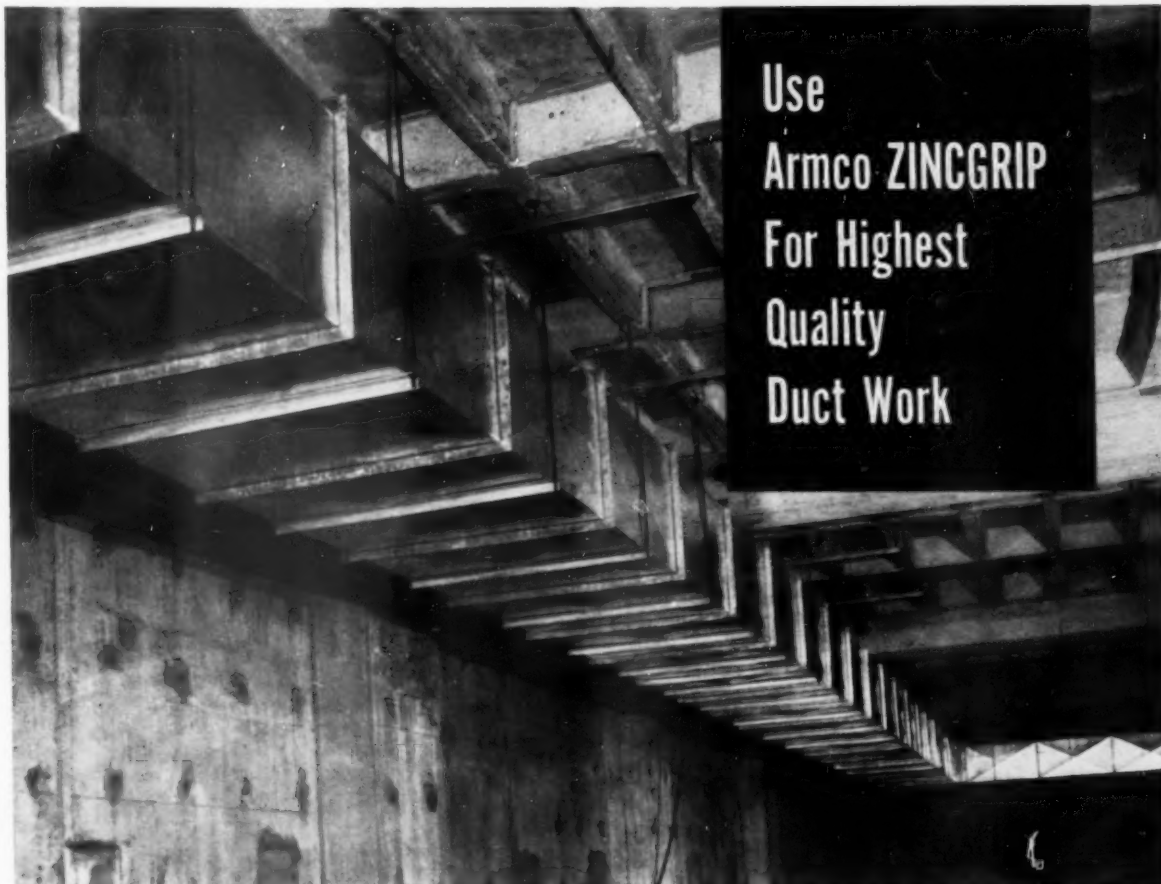
43800 GRAND RIVER AVENUE



NOVI, MICHIGAN

IN CANADA: Canadian General Filters, Ltd., 39 Crockford Blvd., Scarborough, Ontario

Wisconsin Representative: L. E. SCHULEIN, 336 N. Central, Chicago 44, Ill., Phone Estebrook 8-7588
Visit Booths 607 and 609, Oil Heat and Air Conditioning Exposition, Coliseum, New York City, June 9-12.



Use
Armco ZINGRIP
For Highest
Quality
Duct Work

This huge ZINGRIP duct installation is going into a southern railroad terminal.

Whether you're working on large commercial installations or small residential jobs, you'll find that using Armco ZINGRIP® Steel will help you provide the top-quality duct work that builds sales.

Excellent appearance and uniformity of Armco ZINGRIP are the result of more than 20 years' experience in producing this special zinc-coated steel. The coating on ZINGRIP, applied by a patented continuous hot-dip process, will take as much forming as the base metal without flaking or peeling.

For another thing, you can obtain ZINGRIP from

your nearby Armco Distributor in the **most economical size** for the job at hand. Depending on gage ZINGRIP is available in coils up to 51" wide; in sheets, up to 51" x 200" or 60" x 180". Most Armco Distributors are prepared to cut the steel to meet your requirements if they don't have the exact size you need in stock.

Try Armco ZINGRIP for your next job. You can get it from your nearby Armco Distributor. If you don't know his name, just fill in the coupon and mail it to the address below. We'll gladly help you get in touch with him.

ARMCO STEEL

Armco Steel Corporation
1908 Curtis Street,
Middletown, Ohio
Sheffield Division
Armco Drainage & Metal Products, Inc.
The Armco International Corporation



ARMCO STEEL CORPORATION
1908 Curtis Street, Middletown, Ohio

Send me the name of the nearest distributor of Armco ZINGRIP Steel

Name

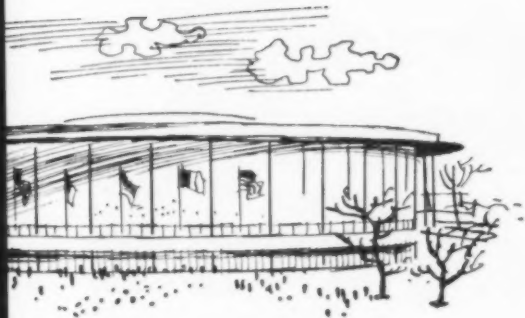
Company

Street

City Zone State

AT THE

WORLD'S FAIR—BRUSSELS



*New Perfection Regulaire selected by
U.S. Government as ONLY home heating-
cooling equipment exhibited at
Brussels World's Fair*

THE NEW PERFECTION REGULAIRE is the *only* heating and cooling unit chosen by the United States Government for its exhibit at the World's Fair in Brussels. Chosen to "show the world" America's newest concept in home comfort. Since the introduction of Perfection's Regulaire other leading manufacturers are taking on a *new* look.

Perfection has been the leader in home comfort for over 70 years. Perfection pioneered compact units, too. Units that can be installed almost anywhere because of size, insulation and serviceability.

But, most important of all, Perfection gave *real* comfort with REGULAIRE. It is the *only* heating and cooling unit in the world that assures a quiet, even flow of air, day and night, winter or summer, throughout the entire house.

And, Perfection's 3-Stage Fire gives real economy . . . only the necessary amount of fuel is used for existing weather conditions.

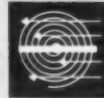
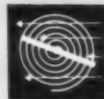
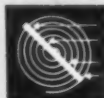
Here are other important "firsts" established by Perfection's revolutionary new Regulaire Home Conditioner. All are important sales-building, profit-building reasons why it pays to . . . **Be with the Leader . . . Sell Perfection!**



first

in Compact, Modern Styling

Perfection's new Home Conditioner is so attractive, compact and efficient it fits in any living area. Gone is the old-fashioned ugly furnace, with unsightly ducts.



first

in Constant-Temperature Comfort

REGULAIRE is the only control that automatically regulates the flow of air . . . eliminates hot or cold "blasts" . . . controls room temperature within two degrees.

Perfection®

DIVISION OF
HUPP
Corporation



first

in Added Fuel Economy

3-STAGE FIRE gives moderate fire for mild weather, high fire for cold. Provides true fuel economy for customers, gives you an extra strong selling point.

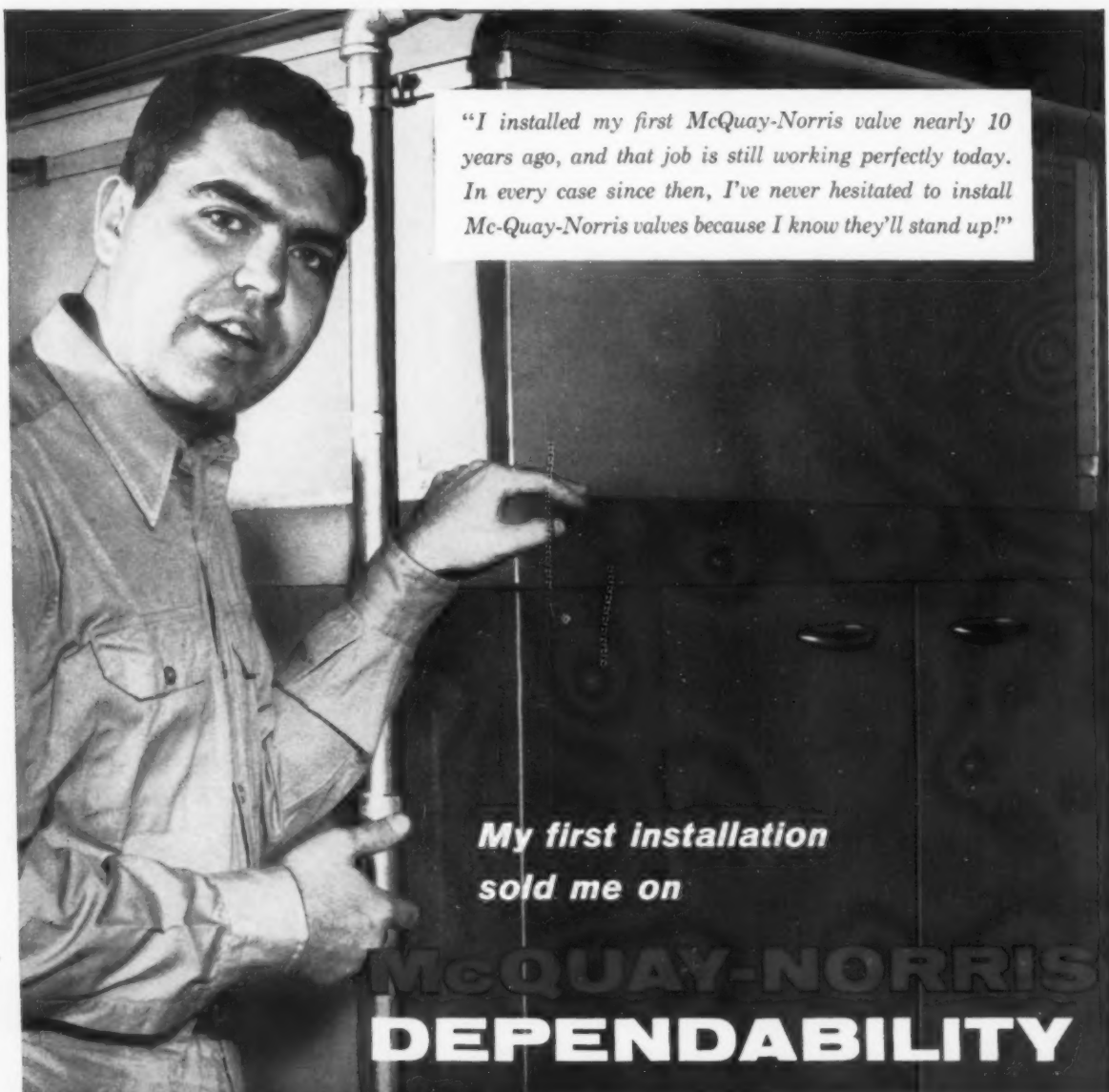


first

in Flexibility, Servicing Ease

Can be installed flush with a wall or built into a cabinet anywhere in the room. New roll-out drawer makes changing filters or occasional lubrication an easy do-it-yourself job.

GUARANTEED COMFORT SINCE 1888



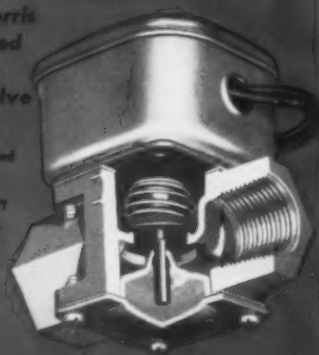
"I installed my first McQuay-Norris valve nearly 10 years ago, and that job is still working perfectly today. In every case since then, I've never hesitated to install Mc-Quay-Norris valves because I know they'll stand up!"

**My first installation
sold me on**

**McQUAY-NORRIS
DEPENDABILITY**

The famous
McQuay-Norris
spring-loaded
soft-seat
Solenoid valve

NOTE: Spring-loaded
soft-seat valves
were originated by
McQUAY-NORRIS.



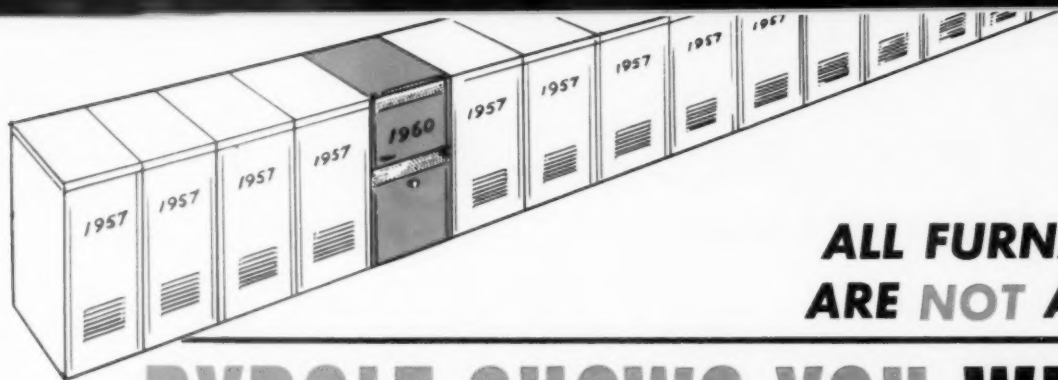
Features...

- Time Tested by leading manufacturers
- AGA and UL listed for use with natural, manufactured and liquid petroleum gases
- Soft-seat valve with positive seal
- Fail-safe—spring pressure always closes the valve
- Operates in any position
- Resists corrosion, stands up under extremes of temperature
- Stainless steel working parts, special analysis aluminum die casting in valve body, soft seat of special formula Buna N



McQUAY-NORRIS
Manufacturing Company • St. Louis 10, Mo.

48 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS



**ALL FURNACES
ARE NOT ALIKE**

RYBOLT SHOWS YOU WHY!

Furnaces may **look** alike, but closer examination will soon prove that "you can't judge a book by its cover." Inspect the RYBOLT . . . It's the one furnace that invites comparison. It's not last year's stripped down model built with only price in mind!

The all new "Whisper Quiet" embodies all the time-tested features of heating design and quality, plus many new features that add much to the "Comfort Standard" of your home.

There should be no compromise with quality, when health, personal welfare and comfort are so vitally affected.

From top to bottom, from inside to outside, accept our challenge to compare, for the **all new** "Whisper Quiet" winter air conditioner is today's finest furnace.

Remember, if it's RYBOLT, it's "Whisper Quiet."



**WGL SERIES
LOBOY GAS-FIRED
WINTER AIR CONDITIONER**

10 YEAR WARRANTY



COMPARE THESE IMPORTANT "Whisper Quiet" FEATURES:

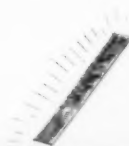
- Dust tight cabinet
- Pressure tested, heavy gauge wrap around heat exchanger
- 10 year warranty
- Built in access light
- Cabinet designed by VOLK
- Lifetime polished aluminum trim
- Built in Electrostatic filter (optional)
- Built in leveling device
- Designed for easy conversion to Summer air conditioning
- Fully automatic

A.G.A. Approved
CGA Approved
CSA Approved

RYBOLT HEATER CO., ASHLAND, OHIO



Built in Burner Air Filter — Today's home, with driers and basement living areas, makes it necessary for dependable efficient burner operation that the burner air be filtered, free of all lint and dust.



Durable Baked-Enamel Finish — wipes clean in a breeze. Striking cabinet is beautifully finished in "Morning Pink" and "Sunset Magenta," trimmed with lifetime polished aluminum — an eye-appealing unit that fits right in with today's decor.



RENU-glas replaceable-media air filters OFFER LOWEST MAINTENANCE COST!

Sturdy steel holding frame!

Filtering pad of amazing AMERglas!

Only the media is replaced — permanent frame and retainer!

Filtering pad is simply replaced when dirty!

Spring retainer snaps out for easy replacement of filtering media!

For installation, simply fasten frames together with furnished rivets!

Write for Bulletin 2161



American Air Filter
COMPANY, INC.

355 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.



AAF Dust Control Equipment



AMERglas Replaceable Air Filters

BETTER AIR IS OUR BUSINESS

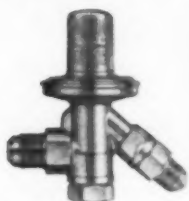
Herman Nelson Propeller Fans



Herman Nelson Unit Blowers

Look twice to controls

Complete line competence for standard requirements
Combined creative resources for special applications



Model 304C Automatic Expansion Valve offers two adjustment ranges: 10" vac. to 45 psig; 10" vac. to 75 psig. Designed for R-12, R-22, methyl and sulphur.



Model 207C Thermostatic Expansion Valve with adjustable or fixed superheat. Pressure limit on special order. When an external equalizer is required, specify Model 207DE.

Here's just a sampling of industry's most diverse line of controls. Whatever your application problem — air conditioning, refrigeration, ventilation, gas, oil heating — it's under control when you choose from A-P's broad line of standard controls.

And should special problems arise, the greatly expanded engineering facilities of Controls Company of America stand ready to assist in solving them. Write for details.

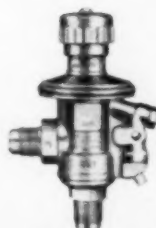
air conditioning and refrigeration



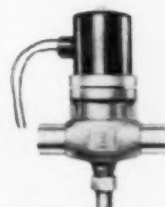
Model 65 Water Regulating Valve meters flow of water and other fluids in response to fluid pressure on valve bellows. Controls water flow to compressors and condensers.



Model 410 Trap-Dri. 100% moisture and acid removal with PA 400 silica gel. No appreciable pressure drop. 1/4" to 1/2" O.D. flare and 1/4" to 1 1/2" solder connections.

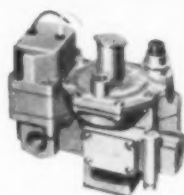


Model 2355 Evaporator Pressure Regulating Valve is suitable for all refrigerants. 1/2 ton R-12, visual pressure setting from 0 to 40 lbs.

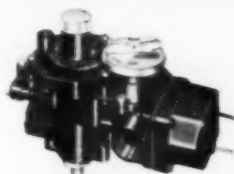


Model 274 Solenoid Valve — Largest of 4 new A-P solenoid valves that satisfy any application. Full range of orifice and connection sizes with capacities up to 60 tons.

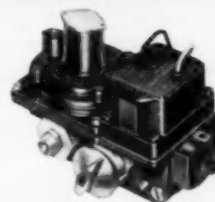
gas heating and cooking



Series 5250 Gas Control for furnaces and unit heaters. Built-in pressure regulator. 100% safe ignition and shut-off. Flow interrupter with summer shut-down.



Series 55 Gas Control offers a choice of four automatic, interchangeable electric and non-electric thermostatic accessories. Satisfies any comfort preference.



Series 5010 Gas Control for manual or automatic heater operation. Nine big features. Available with magnetic operator.

oil heating



Model 2400 Oil Control has exclusive all-steel body. Safely maintains an even rate of oil flow to vaporizing type, oil-burning heaters and furnaces.



Model 2700 Comfort Control Kit provides electric thermostatic heat regulation for heaters and furnaces using A-P controls. Simple, fast installation.



Model 2709 Flexatemp Thermostatic Control Kit easily converts A-P 240Y series single metering stem valves to dependable automatic operation.



CONTROLS COMPANY OF AMERICA

Manufacturers of A-P CONTROLS

2452 North 32nd St. • Milwaukee 10, Wisconsin
Cookeville, Ontario • Nijmegen, Holland
Controls That Make Modern Living Possible

MONCRIEF'S Answer to the



Gas or Oil
Fired Winter
A. C. Units



Gas or Oil
Fired Utility
and Counter-
flow Winter
A. C. Units



Gas or Oil
Fired
Gravity
Furnaces

LOWER PRICES for PREMIUM CONSTRUCTION!

If you have been experiencing a pinch on your profits, then it's time to turn to Moncrief.

With one of the most complete lines of Furnaces and Air Conditioners available, Moncrief offers you a size or type of unit for virtually any installation — with every Moncrief Unit priced so that you can compete with a rewarding margin of profit. In addition, Moncrief's efficient manufacturing has permitted recent reductions in the price of many of the most popular models.

You enjoy this price advantage on units that are backed by Moncrief's more than 60 years of manufacturing experience.

Call your Moncrief Wholesaler, now!



Horizontal
Furnaces
4 Gas Sizes
4 Oil Sizes



Gas Duct
Furnaces
4 Sizes



Gas Unit
Heater
5 Sizes



2, 3 or 5 H.P.
Air or Water
Cooled Gas
or Oil Fired
Year 'Round
A. C. Units



3 or 5 Ton
Water Cooled
Add-On
Summer
A. C. Units



2, 3 or 5 H.P. Air
Cooled Summer
A. C. Units with
choice of "V"
(Upflow) or "Flat"
(Horizontal Flow)
Cooling Coils

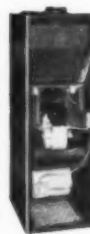


Winter Air
Conditioner
with Return Air
Cabinet installed.
(An accessory)

Winter Air
Conditioner with
plenum-type
Cooling Coil
installed.



Oil Winter
Air Conditioners.
Front Panels
are removed
showing complete
Factory Assembly
and Wiring.



Factory Assembled and Wired Gas Furnaces . . . Oil Furnaces

Gas Fired Units — 75,000, 100,000, 125,000, and 150,000 Btu input — have 16-gauge Heat Exchangers and 21-gauge Casings! Oil Fired Units — 78,400 and 112,000 Btu Output—have

16- or 14-gauge Heat Exchangers, respectively! Winter Air Conditioners and Counterflow Units! Available with High Static Approval for Add-On Cooling!

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF

FURNACE PIPE AND FITTINGS

NEW

... today's first
adjustable—FOR—HEATING
adjustable—FOR—COOLING

PERIMETER DIFFUSERS



designed by

TITUS

Today's MOST ADVANCED DIFFUSERS . . . AT A TRULY COMPETITIVE PRICE. Obsolete ALL others in APPEARANCE . . . DESIGN . . . PERFORMANCE!

Because they are FULLY ADJUSTABLE . . . the new Titus MODEL P-125 diffusers are today's only baseboard diffusers that can provide the proper throw and spread for obtaining maximum performance from BOTH HEATING AND COOLING SYSTEMS.

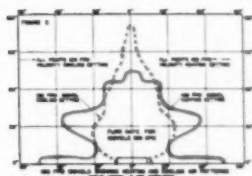
Years ahead in looks, too! New distinctive swept-line styling blends beautifully with any surroundings.

New ECONOMY MODEL P-75 has same, superb styling and basic ADVANCED design as Model P-125 except does not have dual adjustment feature. CAN GIVE YOU THE CONTRACT AGAINST ALL KINDS OF PRICE CUT BIDDING BECAUSE THEY ARE BETTER LOOKING, ARE CONSTRUCTED BETTER, ABSOLUTELY OUTPERFORM COMPETITION.

Both of these new Titus models have a large 32 sq. in. of free area. Both are quicker, easier to install. Provide lasting satisfaction—GIVE THAT EXTRA IN HEATING & COOLING COMFORT THAT MAKES AND KEEPS CUSTOMERS HAPPY.

PROOF!

Isovels from laboratory tests prove Titus new adjustable perimeter diffusers FAR SUPERIOR in PERFORMANCE! Dotted red line shows how cool air is forced to ceiling when Model P-125 diffuser is set for COOLING. Solid red line shows that when diffuser is set for HEATING warm air is diffused in broad pattern so it covers entire window or wall area.



WRITE FOR FREE CATALOG

TITUS MFG. CORP., WATERLOO, IOWA

- ☐ Rush new free illustrated Titus Perimeter Diffuser Catalog
☐ Send name of jobber nearest me

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____





Six Reasons for Turning to Ryerson for Steel

Sheet metal fabricators tell us that these six reasons keep them coming back to Ryerson for galvanized and every other steel requirement:

1. **Exact length on net weight basis**—When your galvanized can be cut from stock width coils we can furnish 4 to 16-foot lengths in $\frac{1}{4}$ " increments—with the savings of a net weight price.
2. **One sure source for all requirements**—Nobody comes even close to equalling the size and variety of Ryerson stocks—whether steel is in scarce or plentiful supply.
3. **Highest quality**—For example, bright, ductile galvanized sheets, uniform in coating and true to gauge, that work easily and form without danger of cracking or peeling!
4. **Correct weight**—and fair prices year in and year out.
5. **Good packaging**—Tightly banded steel, skidded with sound lumber, cuts labor costs, adds protection to the steel and makes handling easier!
6. **Absolutely dependable delivery**—A priceless assurance when delays could mean idle workmen or even lost business.

Next time you need galvanized—or any kind of steel—turn to Ryerson with complete confidence.



RYERSON STEEL®

Member of the  Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.



JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Full Speed Ahead



WHEN ADMIRAL FARRAGUT SAID, at Mobile Bay, "Damn the torpedoes! Full speed ahead!" he set a pattern for the businessman who possesses foresight and the necessary courage to see his plans carried through. There are many such businessmen in the warm air heating-residential air conditioning-sheet metal industry. But there should be more.

This spring, while covering the state association conventions, we've talked with a large number of dealer-contractors. One of the questions we've asked is, "What are you doing to maintain your sales?" Here are some of the answers:

Indiana — "I have developed a 90 day sales contest among my salesmen."

New York — "I've added a telephone canvasser to my promotion staff."

Ohio — "I've doubled my sales promotion budget."

Wisconsin — "I've added another salesman to my staff."

Michigan — "I'm training my servicemen to recognize prospects."

Illinois — "I've increased my advertising budget for this year."

All these dealer-contractors are directing much of their sales efforts to the modernization field and are going "full speed ahead" to locate prospects and to develop sales in the modernization market.

In setting their sights on the rich modernization market, they haven't forgotten that the public must be sold on complete comfort. They realize that in order to do the kind of a job a prospect is entitled to receive, at a profit that the dealer-contractor is entitled to get for his technical know-how, it is necessary to train the entire organization to meet the demands of "hard selling."

The term "hard sell" describes the efforts a good salesman will exert to prove to the prospect that his recommendations are far superior to those offered by competitors who submit lower bids. To aid sales personnel in overcoming the objections of prospects, many dealer-contractors have found it to their advantage to prepare their prospects with adequate sales promotion.

Proper preparation of prospects must be accomplished through a well-designed and prepared sales promotion program. Thus, dealer-contractors forging ahead at full speed do not contemplate any cost reduction in their selling efforts. In many cases they have increased their promotional expenditures.

Increase in promotional expenditures makes the need for selective and effective spending of this money more important than ever. The March American Artisan Modernization Issue outlined the most effective ways to solicit and sell prospects in the modernization field. This "modernization guide" not only includes specific directions for stepping up sales promotional programs, but also includes check-lists that enable dealer-contractors to develop leads at minimum cost. Dealer-contractors using the information in this special issue will find that their efforts to overcome sales objections will be considerably reduced.

Modernization Check-Lists Go Over Big

ARTISAN Modernization Guide

Dealer-contractors and wholesalers are putting American Artisan's promotion tool to work at home shows, in direct mail, for telephone and direct canvassing, on service calls and many other ways

THE WARM AIR HEATING, residential air conditioning and sheet metal industry is putting the March American Artisan Modernization Issue to work. Dealer-contractors and wholesalers see in this 56-page special Modernization Guide a thorough analysis of the modernization market and a complete treatment of the subject. The Modernization Guide covers such subjects as:

- 1) Gear Now for Modernization Boom
- 2) What's Involved in Modernization Work?
- 3) How to Advertise for Modernization Work
- 4) How to Sell Modernization to Prospects
- 5) How to Pay Salesmen
- 6) Where to Find Modernization Salesmen
- 7) How to Train Salesmen
- 8) Put Service Department on Modernization Selling Team
- 9) How to Bid Modernization Jobs
- 10) How to Install Modernization Jobs

To aid dealer-contractors in locating good prospects, three check-lists were prepared and then analyzed by prominent and successful industry members to develop the

strongest pulling power possible. How to get the most out of these check-lists as sales promotional tools is explained in an article in the March Modernization Guide.

Here's what some dealer-contractors and wholesalers have already written us:

"industry will do well to follow practices"

"I've just received the March American Artisan and congratulate you on the complete job you've done in covering the modernization field. I can use 100 additional reprints of the entire series of articles. Please ship this quantity as soon as possible.

"I believe the industry will do well to follow the practices recommended in the March American Artisan to develop the modernization market. Developing this market will serve a dual purpose: 1) bring more business into the industry; 2) provide many American families with more comfort than they ever imagined possible.

"From the dealer-contractor's point of view, the modernization market also offers two advantages: 1) a more constant flow of work the year around, and 2) a better profit—one

modernization job is worth two to five new house jobs and you don't have to wait six months to be paid."

—Clarence G. Guenther, president, Airway Inc., Denver wholesaler.

"rings the bell"

"The March American Artisan certainly rings the bell for being a most complete guide for getting modernization work. American Artisan has done an outstanding job of covering all phases of modernization work. The March issue is a reference guide that every heating and air conditioning dealer-contractor should have in his library.

"I was happy to learn that reprints of these articles would be available in a special edition. This makes a handy booklet for quick reference.

"Attached is our order for 500 Heating Check-Lists and 500 Summer Air Conditioning Check-Lists."—Donald S. McCloskey, Mid-West Heating & Service Co., Indianapolis dealer-contractor.

"mail at once"

"We can use 500 Sheet Metal Check-Lists. Money order enclosed. Mail at

once."—*L. A. Fick, Toronto, Ont. sheet metal contractor.*

"road to better profit"

"Congratulations on your tremendous March issue, which completely covers how to profit by doing modernization work as a dealer-contractor. This is the road to better profits.

"If every dealer-contractor in the industry were to go into modernization work, he would find his business would be more profitable.

"Attached is our order for 100 reprints of the March Modernization Guide."—*Charles R. Bennett, general manager, Armstrong Heating Supply Co., Chicago wholesaler.*

"valuable information for dealer-contractors"

"Your special March issue on the important subject of modernization gives some highly valuable information to dealer-contractors who are going after that kind of work—and I suspect that many of them are going to give more attention to old-house work than they have in the past."—*G. A. Voorhees, Monrovia, Ind. consulting engineer.*

"helpful for getting more business"

"Copies of the March issue have been received and we appreciate the effort that you have put into this issue. The material contained certainly will be helpful in going after more business this year.

"Please send us a copy of the reprints when these become available.

"Enclosed is our order for the following: 300 Heating Check-Lists, 100 Air Conditioning Check-Lists."—*D. W. Downs, manager, Downs Heating Service, Eldridge, Iowa dealer-contractor.*

"most comprehensive study"

"We have examined your March 1958 Modernization Issue and we compliment you. It is the most comprehensive coverage of moderniza-

tion or any other subject that we have seen in any publication in years. The heating industry surely needs more of this sort of thing. Please send us 200 Heating Check-Lists and 200 Sheet Metal Check-Lists."—*H. J. Wiggans, president, the Roland-Swisher Co., Inc., Richmond, Ind. dealer-contractor.*

"handy for air conditioning clinics"

"During April we will be sponsoring in our area three two-day dealer-contractor air conditioning clinics. We will be stressing sales this year.

"In looking over your check-lists on heating, summer air conditioning and sheet metal, we can readily see that they would come in very handy at our clinics.

"Enclosed you will find our purchase order for 300 Heating Check-Lists, 300 Summer Air Conditioning Check-Lists, 300 Sheet Metal Check-Lists and 500 standards cards. You will note we are asking for a quantity of your *Standards for Rating Heating Systems* which you have described in recent issues. All of these will be quite useful in conducting our sales clinics."—*Frank L. Green, sales manager, Heating Wholesalers Co., Des Moines, Iowa wholesaler.*

"we'll use them at the home show"

"Rush us 5000 Summer Air Conditioning Check-Lists. We are going



to use them at the Indianapolis home show."—*Elmer Love, Love Sheet Metal Co., Inc., Indianapolis, Ind. dealer-contractor.*

"mail to building permit holders"

"We receive a listing of all modernization permits issued in this area and intend to mail each permit holder a check-list.

"Enclosed is our order for 1000 Heating Check-Lists and 500 Summer Air Conditioning Check-Lists."—*Bender-Miller Co., Falls Church, Va., dealer-contractor.*

"look forward to putting them to work"

"To get our check-list promotion started, I would like to order 1000 Summer Air Conditioning Check-Lists and 500 Heating Check-Lists. We will look forward to receiving them and putting them to work."—*Tommy Thompson, president, Thompson Co., Atlanta, Ga. wholesaler.*

"it's terrific"

"Please send six additional copies of the March issue. It is terrific. What we intend to do is have each of our salesmen sit down with our accounts and get dealers started utilizing the entire modernization program."—*Robert A. Friestad, general manager, Grand Furnace Co., Grand Rapids, Mich. wholesaler.*



DURING THE INTERVIEW, the telephone canvasser fills in a check-list based on answers provided by prospect. Carbon copy of check-list is sent to the prospect



USE OF CHECK-LISTS in locating prospects is explained to dealer-contractor by Tommy Thompson (right) who has developed a telephone canvassing program for dealer-contractors

Wholesaler's Phone Canvass Idea Sets Up Modernization Leads

He helps dealer-contractors find heating and air conditioning prospects through a productive telephone interview program based on American Artisan check-lists and designed to bring immediate as well as long range sales results

"LOCATING PROSPECTS for modernization work is everybody's job," says Tommy Thompson, The Thompson Co., Atlanta, who believes that service to dealer-contractors is his first responsibility as a wholesaler. To help dealer-contractors find heating and summer air conditioning prospects, he has put the check-lists published in the March American Artisan Modernization Issue to work in a telephone canvassing program.

Mr. Thompson is currently conducting a program based on American Artisan's Summer Air Conditioning Check-List. Here's how it works:

A telephone canvasser, using a street address directory to localize the contacts, asks each home owner if he knows his present heating system can be adapted to summer air conditioning. Having aroused the home owner's interest, the canvasser, a woman with a pleasant telephone manner, then asks if he would mind answering questions from the check-list. These "yes," "no" and "don't know" answers are summarized on the spot to determine whether the system can be easily adapted to summer air conditioning. (Usually it can, of course.) The canvasser

indicates to the prospect that his answers are being used in a survey and that they are important both to the prospect and to the company.

The canvasser closes each interview by advising the prospect that she has filled out a check-list with the answers he has given, and offers to mail him a copy if he is interested in seeing how his system rates.

Salesman Gets Check-List

The original copy of the completed check-list is turned over to a salesman who schedules a follow-up call. He uses the completed check-list to assemble the appropriate sales tools to show the prospect what must be done to provide economical summer comfort in his home and to improve comfort conditions during the heating season.

To help dealer-contractors get started in this type of prospecting program, the Thompson Co. provides



HOW TO USE the American Artisan Modernization Guide is explained by sales manager H. J. Woodall to dealer-contractor's salesman who is starting his own telephone canvassing program to locate prospects



DEALER-CONTRACTOR'S SALESMAN points out to home owner that her air distribution system is suited for addition of summer air conditioning. These points are used in the follow-up sales presentation

a telephone canvasser and names of enough home owners to occupy her time for a full week. The canvasser will make approximately 60 calls in six hours, starting at about 10 a.m. and continuing until 5 p.m. except for about an hour at noon when prospects will be eating lunch. The canvasser uses the name of the dealer-contractor for whom the program is being conducted.

The telephone canvasser uses a sample conversation outline to make her initial approach to the prospect. The outline, which follows a tested pattern, also describes a step-by-step procedure for maintaining the pace of conversation to develop the prospect's interest and to achieve the purpose of the interview.

Approach Is Tested

The approach follows the lines of conversations used successfully in other telephone canvassing campaigns and has been tailored to the time required to complete the interview and fill out the check-lists. The sample telephone conversation guides are supplied to dealer-contractors for continuation of the telephone canvassing program on their own.

To assure maximum results, the wholesaler thoroughly trains everyone involved in the dealer-contractor's prospect-developing pro-

gram. The dealer-contractor is invited to the company's office where Mr. Thompson reviews the procedure step by step and explains how it can be adapted to his use at a very nominal cost. The actual cost involved is minor in that it involves only hiring a telephone canvasser who can be paid by the hour or on commission based on the number of sales closed.

Techniques Are Reviewed

After the program has been explained and demonstrated by Tommy Thompson, the dealer-contractor's salesmen are sent to the wholesaler's office for an interview with sales manager H. J. Woodall, who shows them how to use the most effective tools in closing summer air conditioning sales. He explains how the check-list is used in the sales presentation at the prospect's home, and he reviews good sales promotion techniques that apply the conversational material developed by the check-list interview. Basing the follow-up call on the phone presentation enables the salesman to cultivate the prospect's pre-developed interest in summer air conditioning, at the same time spelling out the benefits of modernizing the existing air distribution system to improve winter comfort.

Salesmen who applied this instruction have already reported excellent

response from prospects, and they expect that an even larger percentage of prospects will be sold as the program develops.

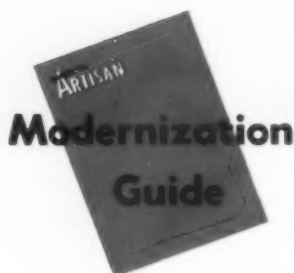
Because The Thompson Co. serves all of Georgia, it's not difficult for participating dealer-contractors to avoid duplication in telephone canvassing activities. However, in cities where more than one dealer-contractor might use the same street address directory, Mr. Thompson helps each firm choose an area for its exclusive canvassing.

Best Prospects Selected

The street address directory is carefully screened to select the best prospects for summer air conditioning modernization. These prospects are selected from areas of relatively modern homes in price ranges which indicate that the owners' incomes are sufficient to enable them to install summer air conditioning without considerable financial strain.

Although this system of solicitation often results in several calls on a prospect without immediate results, it does produce excellent prospect lists for future direct mail programs and for follow-up calls next year. Thus, the program has a two-fold purpose: 1) locating interested prospects for immediate sales, and 2) building prospect lists for future sales.

Air Conditioning Check-List Sells Complete Modernization Jobs



This dealer-contractor feels that a heating modernization job is only the starting point in a complete sale . . . the book is closed when summer air conditioning is installed. Here's how he uses American Artisan's check-lists and *standards* card to achieve his goal.

AS THE MODERNIZATION DRIVE gains momentum, dealer-contractors are broadening their definitions of replacement and remodeling jobs to include profitable work which they might previously have considered separate jobs — if they considered the extra step at all.

Central summer air conditioning is a case in point. Where it formerly was considered as an add-on feature and a job separate from remodeling the heating system (unless, of course, it was necessary to alter the entire

heating system to provide adequate cooling), central air conditioning has come to be thought of by modernization-minded dealer-contractors as the final step in complete modernization of a heating system. Dealer-contractors are recognizing—and convincing their prospects—that comfort is a year 'round proposition and a heating modernization job isn't complete until the air distribution system can provide controlled comfort twelve months a year. In other words, heating modernization is a foot in

ONE-TWO PUNCH CLOSES MODERNIZATION SALES



SUMMER AIR CONDITIONING CHECK-LIST

. . . is used in telephone canvass of new heating system customers and prospects to remind them that minor alterations in their heating systems will provide year 'round comfort. Donald S. McCloskey checks effectiveness of canvasser's approach



STANDARDS FOR RATING HEATING SYSTEMS

. . . card helps salesman pinpoint check-list tabulation, which shows that need for modernization of heating system reduces costs involved in adding summer air conditioning equipment for year 'round comfort in the prospect's home

MANAGEMENT TEAM MAPS PROMOTION PROGRAM



COMPANY OFFICERS (l to r) Donald S. McCloskey, E. L. Carr and W. V. Lowe go over sales promotion plans which include distribution of American Artisan check-lists



FOLLOW-THROUGH CONFERENCE to study the effectiveness of sales promotion program is a weekly affair for E. L. Carr and W. V. Lowe who analyze the productivity of various media

the door for central summer air conditioning sales—and vice versa.

Check-List Uncovers Likely Prospects

This is the idea behind the modernization campaign underway at Mid-West Heating Service Co., Indianapolis, which is using the Summer Air Conditioning Check-List published in the March American Artisan Modernization Issue to find and develop prospects for "complete" modernization of their heating installations. "To sell central residential cooling systems as a modernization of existing central heating installations you must first locate the people who are likely prospects for summer air conditioning," says Donald S. McCloskey, vice president and general manager. E. L. Carr goes back a step further in his formula for lead-prospecting. He says, "Locating the prospect is only one phase of the complete heating modernization program." He believes that once a prospect has been found, American Artisan's *Standards for Rating Heating Systems* card, published in July 1957, can be employed effectively to carry the sale through to its logical end — complete modernization of the air distribution system.

Customers Put on the Payroll

The first step in locating modernization prospects is asking recent purchasers of central residential air conditioning equipment to recommend friends who might be interested in adding summer air conditioning to their existing heating systems. To make this favor worthwhile, the customer is paid \$10 for each lead which produces a

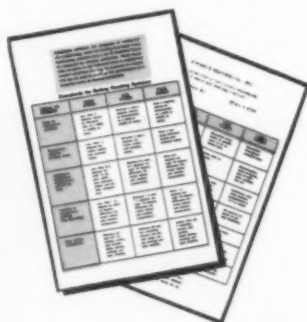
complete warm air heating or central air conditioning system sale.

Mid-West Heating & Service Co. also runs a daily ad in the classified section of the local newspaper. This ad gives useful information relating to gas releases and tells how to obtain them. Of course, people reading the ad and making inquiries will be primarily interested in heating modernization. However, when a prospect is found who is interested in this type of work, he is shown expertly how residential cooling can be added at the same time the heating system is being brought up to date.

The company also uses its list of annual service customers as a mailing list for a direct mail piece offering the same \$10 cash reward for productive leads.

Letter Describes Company

When the company receives the name of a prospect, it immediately mails him an individually typed letter. In this letter the prospect is told about the company's 31 years of service and recommends that the prospect talk to neighbors who are Mid-West customers. These reference customers' addresses are listed in the letter. The letter also points out the quality of workmanship to be expected from Mid-West Heating Service Co.'s employees, noting that some of the men have been with the company 21 years and that all servicemen are factory trained. It also describes the 24-hour service policy the company provides and points out that it maintains its own large inventory of repair parts. The letter ties in the advantages of using the nationally-known products handled by the company. Along with this letter goes



Use Standards To Sell Modernization

THIS ARTICLE describes another way the *Standards for Rating Heating Systems* card has been used to sell modernization. The standards card, introduced in July, 1957 American Artisan, is ideal for use with the Heating Check-List promotion tools presented in the March, 1958 American Artisan Modernization Issue. Attractively designed and written in language the home owner can understand, the standards card lists the 12 points which contribute to complete winter comfort in the home, and rates the prospect's heating system as "Good," "Fair" or "Poor" in terms of each of the 12 comfort conditions. The card adds authority to the sales presentation, and proves conclusively to the prospect the advantage of buying for quality rather than price. Copies of the standards card are available at two cents each from American Artisan.

American Artisan's Summer Air Conditioning Check-List.

Copy Explains Check-List's Function

Copy on the check-list invites the prospect to answer 15 questions relating to the air distribution system and its components (the questions can be answered with check marks in the Yes, No, or Don't Know columns), and to return the completed form so the company engineers can tell them how easily their existing systems can be converted to provide summer air conditioning.

Prospects who return the check-lists are contacted immediately by a salesman who has built his approach

around the answers to the questions. William V. Lowe, who heads the sales department, has prepared a "canned" sales approach that tells why summer air conditioning is desirable. These are the points Mr. Lowe plays up in his formal presentation:

Benefits Spelled Out

Summer air conditioning provides, even when outside weather is very hot, a springlike atmosphere within the living area. It does this by removing part of the moisture in the air as well as lowering the temperature. Filters remove dirt, dust, pollen, etc. from the air. The movement of air through the rooms is not noticeable — no drafts are felt. Outside noises are kept outside and a good night's sleep can be experienced every night, regardless of outside conditions. The resale value of the home is considerably increased, should the owner ever decide to sell.

Another selling point is the company's ability to tie the function of the cooling system in with that of the heating system so all that is required by the owner of the year 'round system is to change the filters periodically and switch the system from heating to cooling and vice versa.

Prospect Participation Stimulates Interest

Once the prospect has been convinced of the desirability of modernizing his existing heating system by adding air conditioning, the salesman begins a survey of the property to determine the exact size of the equipment needed. Once again, the check-list comes into play. The prospect is asked to conduct the salesman through the building to examine the points mentioned on the check-list. During this inspection, each of the points mentioned on the check-list is discussed. The prospect is asked to help with the necessary measurements. Prospect participation stimulates the home owner's interest, and builds his confidence in the installation when it is completed.

Standards Come into Play

Conditions that should be modernized are pointed out to the prospect during the survey. Mentioning such

TABLE 1 — FIRM PLANS PROMOTION on basis of yearly records which show annual contribution to total sales volume of each medium employed

Source of Sale (Promotion Medium)	Percentage of Total Sales	
	1957	1956
Newspaper	30	25
Customer recommendation	12	16
Telephone canvassing (March 1 to May 31)	24	20
Customers recommending prospects for which the \$10 fee was paid	22	22
Friends, employees, telephone book, and other sources	12	10
Home show	Did not participate	7
	100	100

points at the right time helps to justify the cost involved when actual summer air conditioning equipment is to be added to a definitely obsolete heating system. This is where the American Artisan heating *standards* card comes into play. Temperatures of rooms, drafts, fuel costs, etc. can be discussed with the prospect during the survey, and the company's ability to correct undesirable conditions to qualify under the "Good" classification on the *standards* card can be pointed out.

Modernization Puts Cooling Within Reach

Often a prospect can be shown, with the aid of the *standards* card, that his air distribution system is obsolete, even for heating. He can be told precisely what needs to be done to correct the inadequacies, then informed that the additional work required to prepare the system to handle the requirements of summer air conditioning is minor. It virtually becomes a matter of selling summer air conditioning equipment as a logical step in modernizing a heating system.

On the first call, the salesman attempts to get the prospect's signature on a contract for the job, indicating from his survey the equipment that will be needed and the work that must be performed. When a prospect has made this commitment, the necessary information is turned over to the office, where everything is laid out accordingly and copies are made for the customer's file. When he returns to the customer's residence, the salesman gives him a folder which contains copies of the contract and a listing of the work that will be done, plus a drawing of the duct system. The folder includes a list of all equipment, model numbers, capacities, and other pertinent data.

THE HEATING, air conditioning and sheet metal check-lists published in the March American Artisan Modernization Issue can be used as direct mail pieces, for presentation by salesmen, as giveaway items for home shows, etc. Designed to remind home owners of their modernization needs, the two-color check-lists are available at the following prices:

Quantity	Cost
50	\$ 0.85
100	1.35
200	2.70
300	4.05
400	5.40
500	6.75
1000	13.50
2000	27.00
3000	37.00
4000	48.00
5000	59.00

Phone Call Plants Ideas About Cooling

Follow-up telephone calls keep recent heating modernization customers thinking about cooling. A girl who specializes in telephone canvassing calls the heating customer shortly after his job is complete. She talks with him about his new system, asks if he is pleased, and also asks a number of other pertinent questions about the performance of the equipment, etc. Finally, she brings up the subject of the addition of summer air conditioning for year 'round comfort.

Mid-West Heating & Service Co. has been keeping a yearly check on the effectiveness of its merchandising program and directs its efforts along all established channels, concentrating its activity in those areas which appear most effective. Table 1 shows the sources of sales of Mid-West Heating & Service Co.

Follow-Up Letter Offers Service

A letter is written to each new customer expressing the company's pleasure in being able to contribute to the customer's comfort, and reminding him of the company's 24-hour service policy. The letter points out that because the equipment installed is mechanical and will need attention periodically, the company recommends a complete servicing at least once a year. The letter also offers this service at reasonable cost and invites the customer to feel free to call at any time.

The firm's management believes that the two sales aids — the check-list as a sales promotion aid, and the heating *standards* card as a sales presentation aid — form a promotion team that will keep the staff of Mid-West Heating & Service Co. busy throughout 1958.

**To: The Editors
American Artisan
6 N. Michigan Ave.
Chicago 2, Ill.**

Please rush the following quantities:

_____ Heating check-lists
_____ Summer air conditioning check-lists
_____ Sheet metal check-lists

**Enclosed is my check for \$. . . to cover reprinting costs.
(Please print)**

Name _____

Company _____

Street Address _____

City and State _____

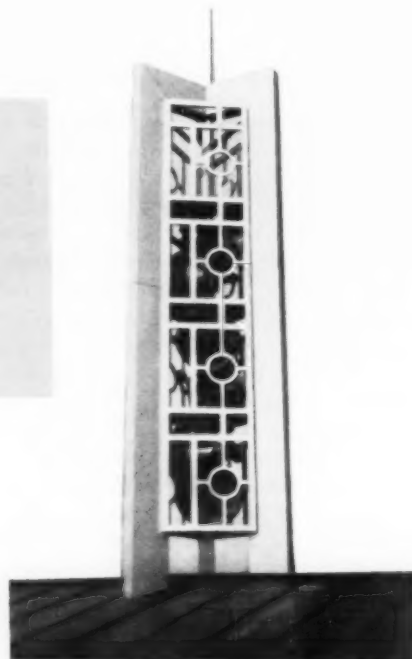
I am a dealer _____ **wholesaler** _____ **manufacturer** _____
other _____

Copper-Sheathed Church Steeples

Let the (Recorded) Bells Ring Out

Something had to be done to eliminate distortion of recordings from modern church steeples, and this sheet metal contractor found the solution—along with some other ideas about roofing and related sheet metal work

1 MODERN TREND in church steeples is to leave large areas open to prevent sound distortion from loudspeakers located within the steeple



2 LOUVERED PANELS at base of steeple are provided for servicing of loudspeakers used to issue church calls



3 OPEN VALLEY FLASHING is preferred by architects because of its ornamental value and its versatility

SHEET COPPER is an old favorite with church people for decorating church roofs because of its soft blue-green patina and because it has a long life expectancy.

It can be said that no product is better than the skill that goes into it. A company which has built a name for itself in the field of roof specialties is the Kramer Co., Milwaukee. Frank Kramer, owner of the company, is well known nationally because of his interest in apprenticeship training for sheet metal workers. Mr. Kramer has been chairman of the apprenticeship committee of the Sheet Metal and Air Conditioning Contractors' National Association for six years.

One of the roof specialties manufactured by the Kramer company is copper-sheathed steeples. Mr. Kramer

Specialty Bids Produce Profitable Roofing Jobs



4 COPPER ROOF FASCIA required two horizontal beads to provide support against distortion caused by expansion and contraction



5 JOINT BETWEEN seamed and soldered sections of copper roof is checked by W. C. Brenner who supervised the erection



6 SNOW TRAP REQUIRED soldered panel roofing; expansion and contraction are handled at parapet wall flashing



7 GUTTERS ON NORTH SIDE of roof are kept clear of ice by electric heating cable being checked here by sheet metal contractor's supervisor

has kept his company tuned to the design changes which accompanied the replacement of bells and chimes with electronic speaker systems. Previously, in steeples constructed to house bells and other instruments to summon congregations to meetings, lattice openings were found to be capable of dispersing the bell tones over the area to be reached. However, when records are used in multiple speaker systems, the sounds are often distorted in weather-protected steeple interiors.

Consequently, the Kramer Co. was called upon to create an open steeple which would permit sounds to escape

freely from their producing instrument.

Figs. 1 and 2 illustrate this type of open structure, as applied in two types of steeples. Note that in Fig. 1, a grille covers the loudspeakers, whereas in Fig. 2, louvered openings surround the entire steeple, permitting the sounds to be transmitted freely.

Steeple Can Be More Ornate

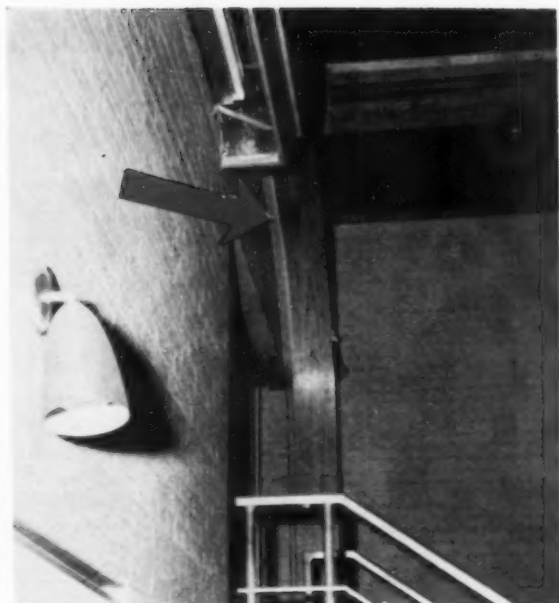
This type of steeple construction provides more ornamentation than was possible on the old time steeples which had to be watertight. It is no

longer necessary to rupture the roof of a church for installation of bell ropes, etc. The modern steeple can be set upon the frame, properly flashed and sealed inside against weather penetration. Weather-resistant speakers are now available for installation in these steeples.

The louvered panels in steeples such as the one illustrated in Fig. 2 must be removable to permit maintenance work on the speaker system. These panels are usually fastened to the interior steel uprights forming the rigid support for the steeple. Panels are fastened with sheet metal screws which can be removed.



8 ORNAMENTAL SPECIALTIES such as copper crosses and copper-lined bulletin board are routine jobs at Kramer Co.



9 FLEXIBLE JOINT between building sections (arrow) helps reduce infiltration of cold air and dirt

The steeples were fabricated in The Kramer Co. shop. Sections of the steeple were made from 16 oz copper, jointed with a cinch lock and sealed wherever necessary with 50-50 solder. An acetylene iron was used to maintain an even, constant flow of heat to the metal, which speeds up the operation and assures tight joints. The steeple in Fig. 2 is 30 ft high. Fabricated at the shop, it was hauled to the building site and set in place with an 80 ft crane supplied by the general contractor.

Usually when The Kramer Co. is called in to fabricate a church steeple, it also bids on the roof and valley flashing and rain carrying equipment. Open valley flashing (see Fig. 3) is recommended. It is usually installed by securing an 8 ft length of 16 oz sheet copper to the roof with $\frac{3}{4}$ in. wide copper cleats fastened into $\frac{3}{4}$ in. edges which are turned back. The valley flashing is never directly nailed to the roof. On slopes with 12 in. per ft or greater pitch, the ends are overlapped with 6 in. of valley flashing. On lesser slopes, the end joints are cinch-locked and filled with white lead paste. The return bends on the cinch

lock are $1\frac{1}{2}$ in. at the top edge and $\frac{3}{4}$ in. at the bottom edge of the sheets.

Fascia Covers Gutter

The ornamental theme is continued in the gutters, as shown in Fig. 4. The gutter is covered by a 16 oz copper fascia, which is broken with the hand brake at two locations to eliminate wrinkles. Wherever the fascia overlaps it is joined with a T style expansion joint. In this type of expansion joint, the sheet is folded back at each end and a cap flashing is driven over the connection and bent over the top and under the bottom of the fascia, to allow for minor movement back and forth without permitting wind-driven rain or snow to get under the fascia.

Use Standing, Batten Seams

A recent copper roof installed on a church combined standing and batten seams to form an attractive and very practical roof. Three standing seams and one batten type seam were combined to allow for expansion and contraction.

The pan technique was used in fabricating the individual panels of the roof. (See Fig. 5, which also shows a small portion of a snow trap.) The snow trap (Fig. 6), because of its small size and ornamental value, was constructed of flat locked, soldered seam copper roofing panels. Several special tools were developed to speed up the installation of batten seams and thus cut down overall installation costs. A manually operated tool was developed to minimize malleting in forming the shapes of the batten seams.

Pans Assembled on Job

The pans for the standing seam were formed in the shop and assembled at the job site. The last two bends of the double-lock standing seam were made with the hand tools. The pans were fabricated from 16 oz copper. Seams are 18 in. apart.

The pans are 96 in. long. The ends of the sheets were folded in a $\frac{3}{4}$ in. reverse bend to form a cinch lock, and assembled end to end. The side edges were then formed to finish with a $\frac{3}{4}$ in. standing seam. Pans are held in place by $1\frac{1}{2} \times 3$ in.

Ventilation for attic spaces is one of the services offered by The Kramer Co. Fig. 10 at right shows Frank Kramer and his shop foreman checking a copper roof ventilator, which has been prepared according to blueprint specifications. These items are carried in stock because of the large demand for them for churches and other institutional buildings, as well as for many plant applications. The Kramer Co. motto, which it periodically brings to the attention of its customers, reflects the company's capability to produce specialty items: "If it's made of sheet metal, ask us about it."



10 COPPER ROOF VENTILATOR is checked against specifications by Frank Kramer (left) and Stanley Snow, shop superintendent

copper cleats nailed to the roof deck at 12 in. intervals. The roof terminates in copper gutters. The joint between the roof and the gutter was made by bending a 5 in. roof edge flashing strip into a U turn at the lower edge of the roof overhang to allow for expansion and contraction of the flashing lip.

Roof pans were secured to the battens with copper cleats fastened under the batten. A $\frac{1}{8}$ in. clearance was carefully provided between the pan and the batten where it fastens to the roof. The battens are covered with a copper cap to form a weather-tight joint.

Snow Well Has Soldered Seams

The snow well, which has flat locked, soldered seam roofing, was fabricated from 18 X 20 in. panels. They were cut this size so equal parts could be made from a 96 in. sheet. Unlike other types of copper roofing such as those which employ standing or batten seams, where the copper sheets can expand and contract freely, roofing with soldered joints becomes, in effect, a single sheet of copper over the entire portion of the roof being covered. Therefore, unless the copper is the proper

thickness and suitable allowance is made for expansion, waves or buckles will form in the roofing squares during hot, sunny weather. During cold weather, the metal will contract and stretch, the force becoming increasingly greater outward from the center of the panel or roof area.

In this section of the roof, clearance between the step flashing which anchors the roof to the masonry parapet walls provides for expansion and contraction. The soldered panels were fabricated from 20 oz copper and fastened to the roof with 16 oz copper cleats. The joints were formed at the edges by cinch locks which were closed with a block of wood and mallet and then filled with 50-50 solder.

Cable Heaters Clear Ice

One of the problems encountered in northern climates is accumulation of ice in gutters on the north side of a roof, which frequently prevents proper drainage. When the sun is shining on the roof, melted snow flows down to the frozen gutter and spills over the edge. To overcome this problem, electrical cable heaters are installed in the gutters along the north side of this particular roof.

Fig. 7 illustrates these heaters at the point where they cross the snow trap and enter the gutter.

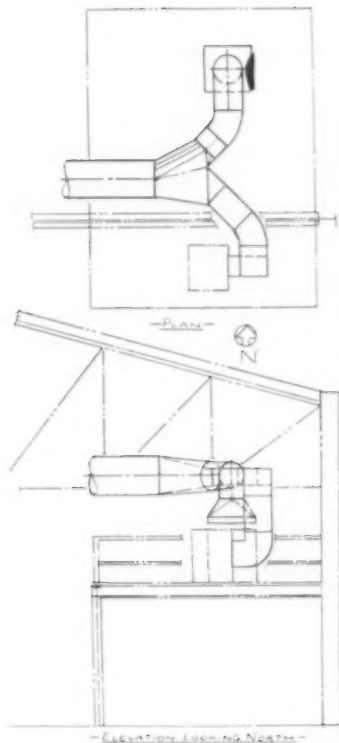
Frequently, because of its ability to install ornamental specialties, Kramer Co. is asked to fabricate other products from copper. One of these items (Fig. 8) is a copper cross mounted on a copper bulletin board. The copper cross is fabricated from one piece of copper, requiring no internal support. The bulletin board has a hinged doorway.

Flexible Joint Designed

Often when a new annex has been added to a building, it is not enough to provide the necessary flashing at the point where the buildings join. The Kramer Co. has designed a flexible joint for such cases. Fig. 9 shows a joint in place. The wooden support and beam rising along the outer wall and bending across the ceiling has a corrugated copper strip which was fastened to it before it was put in place. The pressure applied in its erection is sufficient to hold the joint in contact with the existing wall. This joint overcomes some of the problems often created by masonry contractors joining new annexes to existing buildings.

How to Lay Out a Wye Branch Fitting

... with one square leg and one round leg, using the simplified method of pattern layout



1 PRACTICAL APPLICATION of square and round leg wye branch fitting is in building where structural interference required running branch duct between building trusses

A COMBINATION square leg and round leg wye branch fitting was made necessary when the design draftsman found that because of building service piping and other structural interference, a branch duct going toward the south side of the building had to pass between building trusses and be connected to a rectangular exhaust hood located on a production machine. From the end view drawing Fig. 2B, it is noted that the wye branch is symmetrical about the center line. From this analysis it is determined that all lines necessary for the layout of the pattern can be developed from the front view as shown in Fig. 3.

Given the front view and the end view of a wye branch with one round leg and one square leg, the following is a step-by-step analysis of the pattern problem solution:

Simplified Method, Fig. 3 —

a) Draw a right angle and mark the intersection point of the lines with the number 10. From point 10, measure up $2\frac{1}{2}$ in. and establish point 12. From point 10, measure the given 2 in. to the right and mark point 11.

b) From point 12, draw a line to the right and perpendicular to line 10-12. Measure $1\frac{1}{4}$ in. and mark the point 13. From point 13, draw a line downward and perpendicular to line 12-13. Measure down $\frac{1}{2}$ in. and mark the point 17. From point 17,

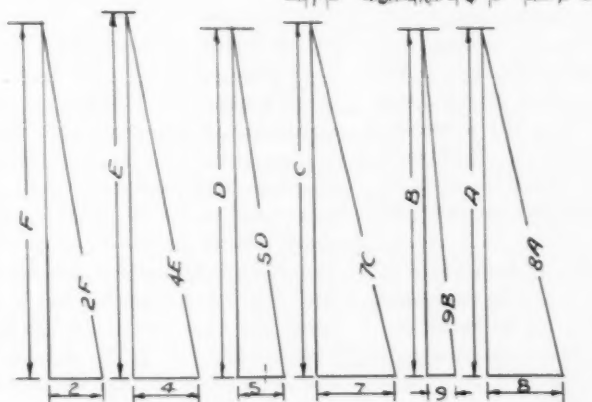
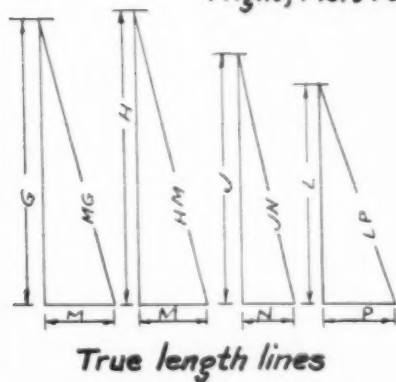
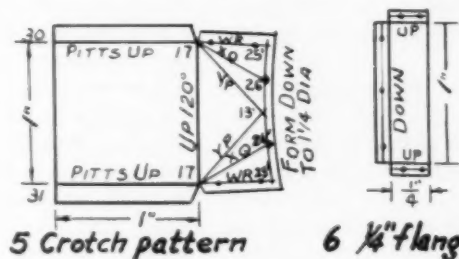
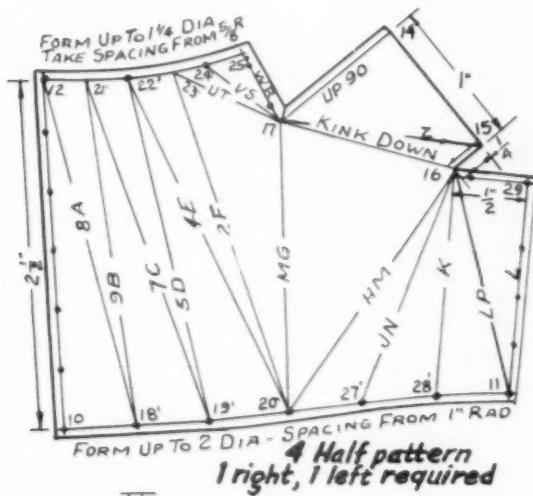
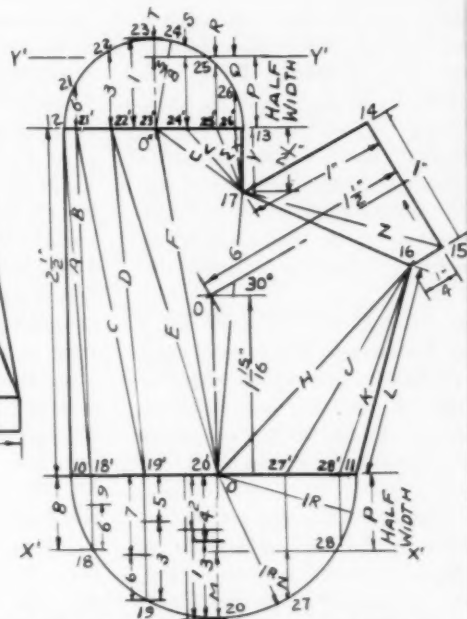
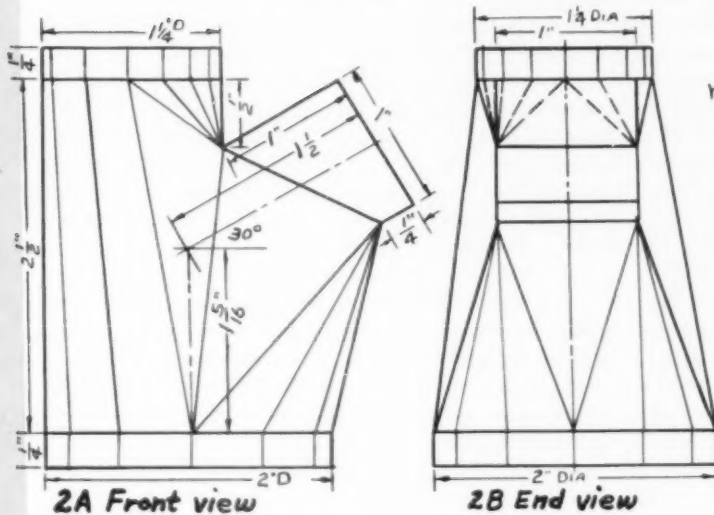
draw a line to the right and upward at 60 deg to line 13-17. Measure 1 in. along this line and mark the point 14.

c) From point 14, draw a line downward at 90 deg to line 17-14. Measure 1 in. on this line and mark the point 15. Draw a line to the left at 90 deg to line 14-15. Measure $\frac{1}{4}$ in. on this line and mark point 16. Draw the lines 16-17 and 16-11.

d) From point 10, measure 1 in. to the right and mark the point 0. With point 0 as center, and radius 1 in., draw a half circle below line 10-11. Divide the half circle into six equal spaces. Mark these points 18, 19, 20, 27 and 28. Through the points draw lines perpendicular to and intersecting line 10-11. Where the perpendicular line from point 18 intersects line 10-11, mark the point 18'. Where the perpendicular line from point 19 intersects line 10-11, mark the point 19'. Where the perpendicular line from point 20 intersects line 10-11, mark the point 20'. Follow the same procedure to identify points 27' and 28'.

e) From point 12 on line 12-13, measure $\frac{5}{8}$ in. to the right, and mark the point 0''. With point 0'' as center and radius $\frac{5}{8}$ in., draw a half circle above line 12-13. Divide the half circle into six equal spaces and mark these points 21, 22, 23, 24, 25 and 26. Through the points draw lines perpendicular to line 12-13. Where the perpendicular line from point 21 intersects line 12-13, mark the point

Note: Drawings have been reduced 15 percent in size for reproduction on this page



21'. Follow the same procedure for identifying points 22', 23', 24', 25' and 26'. Mark the line 21-21' as line 6; line 22-22' as line 3; and line 23-23' as line 1. From the intersection points on lines 10-11 and 12-13, draw the work lines A, B, C, D, E, F, G, U, V, W, X, Y, Z, H, J, K and L.

f) From line 10-11, measure down $\frac{1}{2}$ in., and draw the horizontal line X'X'. From diameter line 12-13, measure up $\frac{1}{2}$ in. (half width of the square) and draw the horizontal line Y'Y'.

g) Subtract the length of line 1 from line length 20-20', and mark the difference in lengths with the number 2. Subtract line length 3 from line length 20-20', and mark the difference in lengths with the number 4.

h) Subtract line length 3 from line length 19-19'. The difference in length is numbered 5. Subtract line length 6 from line length 19-19' and mark the difference in lengths with the letter 7. Subtract line length 6 from line length 18-18', and mark the difference in lengths with the letter 9.

i) Mark the distances from line Y'Y' to points 23, 24, 25, 26 and 13 on the top half circle with the letters T, S, R, Q and P. Mark the distances from line X'X' on the bottom half circle to points 20, 27, 28 and 10 as lengths M, N, P and 8, respectively.

The Half Pattern, Fig. 4 —

a) Draw a vertical line and establish the point 20' at its base. Draw a right angle to develop true length lines. From Fig. 3, transfer line length G (20'-17) to the vertical leg, and fall distance M to the horizontal leg. The hypotenuse MG is the developed line. With point 20' (Fig. 4) as center, and radius MG, draw an arc on the vertical line and mark the point 17.

b) Transfer line H from Fig. 3 to the vertical leg of a right angle, and fall distance M to the horizontal leg. The hypotenuse HM is the developed line. With point 20' (Fig. 4) as center, and radius HM, draw an arc to the right of point 17. With line

length 17-16 (Fig. 3) as radius and point 17 (Fig. 4) as center, cut arc HM and mark the point 16.

c) Measure line Z (on the square leg, Fig. 3) and with point 17 (Fig. 4) as center, draw an arc to the right of point 17 and above point 16. With $\frac{1}{4}$ in. radius and point 16 (Fig. 4) as center, cut arc Z, and mark the point 15.

d) Transfer line J and fall distance N from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line JN is the developed line. With point 16 (Fig. 4) as center and radius JN, draw an arc to the right of point 20'. With equal arc space 20-27 (Fig. 3) as radius and point 20' (Fig. 4) as center, cut arc JN, and mark the point 27'.

e) The fact that point 28 is on line XX (Fig. 3) indicates there is no fall distance for line K. With point 16 (Fig. 4) as center and line K (Fig. 3) as radius, draw an arc to the right of point 27'. With arc length 27-28 (Fig. 3) as radius and point 27' (Fig. 4) as center, cut arc K, and mark the point 28'.

f) From Fig. 3, transfer line L and fall distance P to the vertical and horizontal legs of a right angle. The hypotenuse line LP is the developed line. With point 16 (Fig. 4) as center and radius LP, draw an arc to the right of point 28'. With arc length 28-11 (Fig. 3) as radius and point 28' (Fig. 4) as center, cut arc LP, and mark the point 11.

g) With line length L (Fig. 3) as radius and point 11 (Fig. 4) as center, draw an arc to the right of point 16. With the $\frac{1}{2}$ in. half width as radius and point 16 (Fig. 4) as center, cut arc L, and mark the point 29.

h) Transfer line F and fall distance 2 from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line 2F is the developed line. With point 20' (Fig. 4) as center, and radius 2F, draw an arc above and to the left of point 17. Transfer line U and fall distance T from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line UT is the developed line. With point 17 (Fig. 4) as center and radius UT, cut arc 2F and mark the point 23'.

i) Transfer line V and fall distance S from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line VS is the developed line. With point 17 (Fig. 4) as center and radius VS, draw an arc to the right of point 23'. With arc length 23-24 (Fig. 3) as radius and point 23' (Fig. 4) as center, cut the arc VS and mark the point 24'.

j) The line W and the fall distance R are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line WR is the developed line. With point 17 (Fig. 4) as center and radius WR, draw an arc to the right of point 24'. With arc length 24-25 (Fig. 3) as radius and point 25' (Fig. 4) as center, cut arc WR, and mark the intersection point 25'.

k) Transfer line E and fall distance 4 from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line 4E is the developed line. With point 20' (Fig. 4) as center, and radius 4E, draw an arc to the left of point 23'. With arc length 23-22 (Fig. 3) as radius and point 23' (Fig. 4) as center, cut arc 4E, and mark the point 22'.

l) Line D and fall distance 5 are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line 5D is the developed line. With point 22' (Fig. 4) as center and radius 5D, draw an arc to the left of point 20'. With arc length 20-19 (Fig. 3) as radius and point 20' (Fig. 4) as center, cut arc 5D and mark the point 19'.

m) Line C and fall distance 7 are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line 7C is the developed line. With point 19' (Fig. 4) as center and radius 7C, draw an arc to the left of point 22'. With arc length 22-21 (Fig. 3) as radius and point 22' (Fig. 4) as center, cut arc 7C, and mark the point 21'.

n) Transfer line B and fall distance 9 from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line 9B is the developed line. With point 21' (Fig. 4) as center and radius 9B, draw an arc to the left of point 19'. With arc length 19-18 (Fig. 3) as radius and

point 19' (Fig. 4) as center, cut arc 9B and mark the point 18'.

o) From Fig. 3, transfer line A and fall distance 8 to the vertical and horizontal legs of a right angle. The hypotenuse line 8A is the developed line. With point 18' (Fig. 4) as center and radius 8A, draw an arc to the left of point 21'. With arc length 21-12 (Fig. 3) as radius and point 21' (Fig. 4) as center, cut arc 8A and mark the point 12.

p) With the $2\frac{1}{2}$ in. line 12-10 (Fig. 3) as radius and point 12 (Fig. 4) as center, draw an arc to the left of point 18'. With arc 18-10 (Fig. 3) as radius and point 18' (Fig. 4) as center, cut arc 12-10, and mark the point 10.

The Crotch Pattern, Fig. 5 —

a) Draw the 1 in. vertical line 17-17. From points 17, draw lines to the

left and perpendicular to line 17-17. From both points, measure the given 1 in. length (as shown on the square crotch leg, Fig. 3) on the horizontal lines (Fig. 5). Mark the points 30 and 31. Draw the line 30-31.

b) Transfer line Y and fall distance P from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line YP is the developed line. With points 17 (Fig. 5) as centers and radius YP, draw intersecting arcs and mark the point 13'.

c) The line X and fall distance Q are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line QX is the developed line. With points 17 (Fig. 5) as centers and radius QX, draw arcs above and below point 13'. With arc length 13-26 on the top half circle (Fig. 3) as radius and points 13' (Fig. 5) as centers, cut arcs QX and

establish the points 26' at the intersections.

d) Draw a right angle. From Fig. 3, transfer line W and fall distance R to the vertical and horizontal legs of the right angle, and develop the hypotenuse line WR. With points 17 (Fig. 5) as centers and radius WR, draw arcs above and below points 26'. With arc length 26-25 (Fig. 3) as radius and points 26' (Fig. 5) as centers, cut arcs WR and mark the points 25'.

The Flange Pattern, Fig. 6 —

Draw a rectangle equal to the $\frac{1}{4}$ in. length by the 1 in. width, as shown on Figs. 1 and 2.

Through the developed points, draw the pattern outlines. Add the necessary allowances for seams and joints, lay out the rivet holes, and mark the patterns for fabrication.

Sees 'Midget' Central Air Conditioners

CENTRAL AIR CONDITIONERS POWERFUL enough to cool an entire home — yet small enough to be carried under one arm — eventually will revolutionize the summer air conditioning industry, predicts Bruce D. Henderson, vice president in charge of the Air Conditioning Div., Westinghouse Electric Corp.

He said the next three to eight years will see changes in the summer air conditioning and warm air heating industry far more revolutionary than anything that has occurred in the last 40 years.

"With a present market saturation in residential air conditioning of something less than 2 percent," said Mr. Henderson, "the air conditioning industry's growth potential appears almost unlimited. Important new technical developments, which now appear to be well within our industry's capabilities, will help the industry to realize much of this potential within the predictable future."

Central Units Smaller Than Window Models?

"We can now foresee," he continued, "central residential air conditioning and warm air heating units smaller and more compact than present-day window air conditioners. The serviceman who installs them will carry them in under one arm. If electrical connections are ready, he will be able to install the equipment and have it operating in a matter of minutes rather than hours."

Mr. Henderson said future air conditioning units will provide not just filtered air, but electronically cleaned air from which 90 percent of all airborne impurities has been removed.

The heating and cooling plants of the future will be practically silent and free of vibration, he added.

"In order to manufacture units of the type described," said Mr. Henderson, "the industry will develop and put into production compressors no larger than a bowling ball. We will have heat exchangers many times as efficient and far more compact than those in use today. The entire system will be 'miniaturized' and manufactured by automatic methods."

Know-How Is Available

Mr. Henderson pointed out that the industry has the know-how to accomplish these things without any major technological innovations.

"No new discoveries are required to make these things possible," he said. "It is merely a matter of putting the necessary effort into engineering development and launching the manufacturing studies needed to bring about lower production costs."

He emphasized, however, that manufacturers must be prepared to invest a substantial part of each sales dollar in research and development, and voiced the opinion that any manufacturer of air conditioning equipment now spending less than 5 percent of its sales volume for research will be at a competitive disadvantage ten years from now.

"The air conditioning industry," said Mr. Henderson, "has reached the point where it is capable of supporting the kind of engineering development needed to enable it to fulfill its promise."



NO STRANGER to Artisan readers and the heating-cooling field, Guy Voorhees is one of the industry's outstanding authorities. For many years, he has been associated with NWAHACA, assisting in the preparation and presentation of educational programs, technical manuals and government and industry reports. Mr. Voorhees long has been in a position to keep abreast of latest developments, and his reports in *American Artisan* reflect these up-to-the-minute ideas. This is the fifth in a continuing series.

HEATING THE BASEMENT — PART 2

Basement Heat Losses Don't Recognize Spring

**With rising temperatures in early spring,
heat losses from rooms above grade drop noticeably
... not so the below-grade portions of the basement.**

Here's why and how to compensate for this factor

LAST MONTH'S "CLASSROOM" discussion outlined the most acceptable methods of calculating basement heat losses for modernization jobs, based on the little-known factor of heat transmission through the portions of the basement walls which are below grade. Having solved the problem satisfactorily under design conditions, let's turn to another common problem associated with heating the basement—that of keeping it comfortably warm during the latter part of the heating season.

Many dealer-contractors have heard customer queries along this line: "Something seems to have gone wrong with the new heating system you installed for me last fall. The basement was quite comfortable during the winter but now it's uncomfortably chilly and I can't get it warmed up without either overheating the rooms above or else shutting

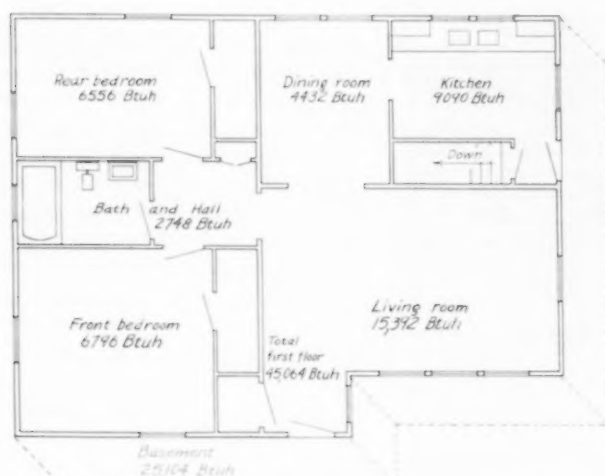
most of the registers (diffusers) in those rooms."

In checking these complaints, we learned that basement heat losses don't follow the up-and-down patterns which are found in the rooms entirely above grade. As the outdoor air temperature rises, the total heat loss of the building becomes less. This is true of both the first story rooms and the basement but, with the rising outdoor air temperature in the spring, the heat loss of the first story rooms decreases more rapidly than that of the basement. In other words, a greater percentage of the total furnace heat output should be delivered to the basement during the relatively mild days in the spring than is delivered in mid-winter. In the fall, with an outdoor temperature of 60 F, and 70 F indoor temperature, we would have an inside-outside air temperature difference of only 10

deg and consequently a low rate of heat loss from both the first story rooms and the basement above grade. Early in the heating season we also have a low rate of heat loss through the below-grade basement wall because the earth has been absorbing heat throughout the summer so it is still warm within a few feet of the surface and a little farther down it is merely cool—not cold.

Under a mid-winter design temperature of -5 F, we would have a 75 deg air-to-air temperature difference for all parts of the house above grade and consequently a high rate of heat loss. Roughly speaking, the "cold" has been penetrating farther downward from the surface of the earth in contact with the outside of the basement walls, and the heat loss through these walls below grade is high.

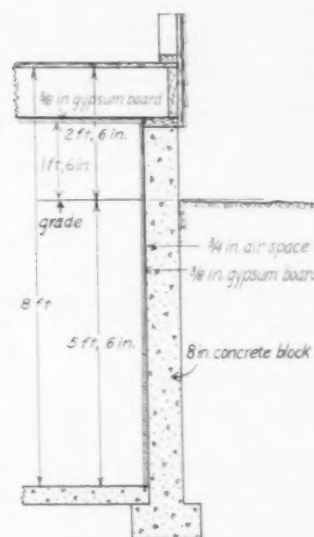
In the spring, let's assume the outdoor air temperature is back to 60 F — the same as in the fall. The heat loss above grade is again low. But the rate of heat loss below grade remains high because the earth warms very slowly and the rate of heat loss a few feet below grade remains almost as great during the



1 PROBLEM HOUSE has total first floor heat loss of 45,064 Btuh. Full basement adds another 25,104 Btuh, for total building heat loss of 70,168 Btuh.

TABLE 2—HEAT TRANSMISSION factors (U values) for 8 in. concrete block walls with inner finish furred out $\frac{3}{4}$ in. or more from block take on new importance in age of modernization

Type of interior finish	Thickness, in.	Gypsum aggregate		Luster aggregate		Lightweight aggregate	
		Compressive strength, lb./sq. in.	Air space, in. per sq. ft. by weight, lb./sq. ft.	Compressive strength, lb./sq. in.	Air space, in. per sq. ft. by weight, lb./sq. ft.	Compressive strength, lb./sq. in.	Air space, in. per sq. ft. by weight, lb./sq. ft.
Wood framework "hardboard" type	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Wood framework "hardboard" type	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{5}{8}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Composition wallboard	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Gypsum wallboard	$\frac{5}{8}$	10-14	0.52	10-14	0.27	10-14	0.23
Gypsum wallboard	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Gypsum wallboard	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
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Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{3}{4}$	10-14	0.52	10-14	0.27	10-14	0.23
Fiberglass	$\frac{1}{2}$	10-14	0.52	10-14			



2 FINISHED CEILING attached to first floor joists reduces above-grade height of basement to 1½ ft. "Finishing" of walls and ceiling reduces heat loss.

early days of spring as it was in mid-winter.

Therefore in late winter and early spring the heat loss of a fully heated basement represents a greater proportion of the total heat loss of the house than is ordinarily assumed in designing the system.

Table 1 gives data regarding relative heat losses of first story rooms and basement of the problem house (Fig. 1) for which detailed heat loss calculations were given in "classroom" discussions in March and April American Artisan. It is neither intended nor recommended that a dealer-contractor make any such de-

tailed analysis of comparative heat losses for every job in which the basement is to be heated. But if he does it occasionally he will develop a better understanding of what he's up against when he guarantees to keep basement rooms heated comfortably — especially during the critical days late in the heating season when the heat loss of the basement represents a large proportion of the total heat loss of the house.

For our problem house, we assumed an outdoor design temperature of -5°F . This is the first entry in column A of Table 1. In March American Artisan we found that for

TABLE 1 — HEAT LOSSES of problem house are greatest above grade during mid-winter, below grade in early spring. Design temperature difference is 75 F

A	B	C	D	E	F
Outdoor air temp., deg F	Heat loss, 1st story only	Heat loss, Btuh basement only	Btuh entire house	Percent of Total Heat Loss 1st story	Percent of Total Heat Loss basement
-5	45,064	25,104	70,168	64	36
0	42,060	23,982	66,042	64	36
5	39,056	22,861	61,917	63	37
10	36,051	21,739	57,790	62	38
15	33,047	20,618	53,665	62	38
20	30,043	19,508	49,551	61	39
25	27,038	18,374	45,412	60	40
30	24,034	17,253	41,287	58	42
35	21,031	16,132	37,163	57	43
40	18,026	15,010	33,036	55	45
45	15,021	13,888	28,909	52	48
50	12,017	12,766	24,783	48	52
55	9012	11,644	20,676	44	56
60	6009	10,523	16,532	36	64
65	3004	9962	12,966	23	77

HEAT LOSS AND CONSTRUCTION DATA <i>Design temp diff. = 75 F</i>													
(See TABLE 2 AND 3 in MANUAL 3 AND USE CONSTRUCTION NUMBERS LISTED)													
1	Name of Room					Basement		Above grade		Below grade			
2	Room No.	Story				1	STORY	2	STORY	3	STORY		
3	Running Ft. Exposed Wall					128 FEET		FEET		FEET			
4	Ceiling Height					1.5 FEET		FEET		FEET			
Room Size						Above grade 5.5 "							
MANUAL 3						Table 2		Table 3					
TYPE OF EXPOSURE						Number		HTF		Area			
						Const.	Ideal.	or 10'	Multi-plier	or Crack	Btuh. Loss	Area or Crack	Btuh. Loss
5	Gross Exposed Walls					a.	18-HR			192	---	---	---
						b.	47-j	39		704	---	---	---
						c.							
6	Windows and Doors					a.	1-a	1	1.13	85	24	2040	2040
						b.							
						c.							
7	Net Exposed Walls					a.	18-HR		0.22	17	168	2856	2856
						b.	47-j	39	0.06	5	704	3520	3520
						c.							
8	Cold Partition					a.							
						b.							
						c.							
9	Cold Ceilings					a.							
						b.							
						c.							
10	Cold Floors					a.	49-a	44	0.06	5	952	4760	4760
						b.							
						a.	52-c	53	1.60	120	27	3240	3240
11	Infil-tration					b.							
						c.							
						d.							
12	Sub-total Room Btuh. loss										16,416	8136	8280

3 HEAT LOSS FROM BASEMENT in problem house is reduced considerably by addition of basement ceiling and interior wall panels

loss is directly proportional to the indoor-outdoor temperature difference, using the following formula:

$$B = 45,064 \times (70 - t_o) / 75$$

in which

B = Btuh heat loss of first story only at outdoor temperature shown in col. A;

45,064 = Btuh heat loss of first story only at outdoor design temperature of -5 F;

t_o = outdoor temperature shown in col. A;

70 = average inside air temperature;

75 = inside-outside design temperature difference.

For an outdoor air temperature of 10 F, for example, this formula becomes:

$$B = 45,064 \times (70 - 10) / 75 \\ = 36,051 \text{ Btuh}$$

In column C, the basement heat loss of 25,104 Btuh for the assumed outdoor design temperature of -5 F is taken directly from line 12, column 1 of the heat loss work sheet (Fig. 3 in April American Artisan). But for outdoor air temperatures in column A which are higher than the -5 F design temperature, we cannot assume, as we did in figuring the Btuh values in column B, that the basement heat loss is directly proportional

to the outdoor air temperature. Such a relationship does exist for transmission loss through that part of the wall above grade and for infiltration loss, but not for loss through the floor and the below-grade wall.

In our present analysis we assume the below-grade basement loss remains the same in late winter and early spring as it was under design temperature conditions. This is not strictly true, but: a) for reasons given in last month's article we never know exactly what the below-grade loss is; b) we do know that it remains quite high during the latter part of the heating season; and c) dealer-contractors who have made analyses like this and who have checked up rather carefully on heating results in the spring believe that for practical purposes the assumption is substantially correct—at least, any error is on the safe side.

Calculate Basement Heat Loss

Therefore the formula for calculating Btuh losses of basement (column C) for any outdoor air temperature in column A is:

$$C = 8280 + [16,824 \times (70 - t_o) / 75]$$

in which

C = Btuh heat loss of basement, at outdoor temperature in col. A in late winter and spring;

8280 = Btuh heat loss of basement floor and wall below grade at outdoor design temperature which is -5 F;

16,824 = Btuh heat loss of above-grade basement walls at outdoor design temperature of -5 F;

t_o = outdoor temperature shown in col. A;

70 = average indoor air temperature;

75 = inside-outside design temperature difference.

Applying this formula, for example, to an outdoor air temperature of 25 F, we get:

$$C = 8280 + [16,824 \times (70 - 25) / 75] = 18,374 \text{ Btuh.}$$

To Find First Floor Loss . . .

Next we want to find for any given outdoor temperature in column A, the percent of total heat loss of the house which is assignable to the first story rooms and for which we use the following formula:

$$E = B/D \times 100 \text{ percent}$$

in which

E = percent (col. E) of total heat loss of house which represents heat loss of first story rooms only;

B = Btuh heat loss of first story rooms in col. B;

D = Total Btuh heat loss of house in col. D.

Applying this formula to an outdoor temperature of 45 F, for example:

$$E = 15,021 / 28,909 \times 100 \\ \text{percent} \\ = 52 \text{ percent}$$

The percent of basement loss in column F is equal to the percent of first floor loss in column E subtracted from 100 percent. Thus, for the outdoor temperature of 45 F in column A which we have just considered, it amounts to:

$$100 \text{ percent} - 52 \text{ percent} \\ = 48 \text{ percent}$$

Percentages Are Reversed

Note in Table 1 that at an outdoor air temperature of 60 F, the relative

percentages of heat distribution to first floor and basement have reversed themselves as compared with design conditions. Under design conditions (-5 F), 64 percent of the total heat loss is from the first story rooms and the remaining 36 percent is from the basement. But when the outdoor temperature is 60 F, the first story heat loss has dropped to 36 percent of the total and the basement loss has jumped to 64 percent.

According to accepted methods of heating system design, we would size our supply duct system on the basis of design temperature conditions which means that the warm air ducts would be sized to deliver 64 percent of the heat to the first story rooms and 36 percent to the basement. Then for this particular house when the outdoor temperature has risen to 60 F and the proportions of heat loss have reversed themselves, what happens?

1) Sixty-four percent of the heat output of the furnace continues to go to the first story rooms which now need only 36 percent.

2) Only 36 percent of the heat is delivered to the basement which now needs 64 percent.

Just how to correct this situation is a matter to be considered when we design the system, and it will be discussed in detail in a later "classroom" article. At present, however, we're especially concerned with basement heat losses.

'Finishing' Cuts Heat Loss

We assumed in the April "classroom" article that the exposed basement walls were 8 in. concrete block made with gravel aggregate, with no interior wall covering. We also assumed there was no basement ceiling attached to the bottoms of the first story joists.

Suppose the owner decides to improve the appearance of the basement by installing a ceiling and side-wall interior finish of $\frac{3}{8}$ in. gypsum board with reflective insulation on the side facing the $\frac{3}{4}$ in. air space provided by furring strips. How will this change the basement heat loss?

First, the height of exposed wall

above grade (Fig. 2) is reduced from 2 ft 6 in. to 1 ft 6 in. and its net area is reduced from 296 to 168 sq ft.

Second, the rate of heat transmission through the wall above grade is reduced because of the new interior finish ($\frac{3}{8}$ in. drywall), furred out $\frac{3}{4}$ in. from the masonry to provide a dead air space, one side of which is faced with reflective insulation.

U Value Table Gives New Data

This is one of a number of interior coverings applied to "finish" concrete block walls for which the dealer-contractor does not find a heat transmission factor listed in NWAHACA Manual 3 or other authoritative publications. The U value of this particular wall can be calculated from data given in appendix B of NWAHACA Manual 3. But there are other types of interior wall coverings for which the current (sixth) edition does not give the data needed to calculate the U value. Table 2 has therefore been compiled to provide this information for American Artisan readers. The U values in this table apply only to walls above grade. For any constructions below grade, a heat transmission factor of 0.06 is recommended in Manual 3.

The type of interior finish we have described is identified as construction 18-HR in Table 2 and its heat transmission factor (U value) is 0.22. This value is entered in the HTF column of NWAHACA work sheet form 2 (Fig. 3). The total heat loss of the basement is shown in column 1, line 12 of Fig. 3. In columns 2 and 3 the losses above grade and below grade are listed separately. The below-grade loss (8280 Btuh) is the same as shown for the unfinished basement in last month's discussion because it is commonly assumed that the below-grade transmission loss remains about the same, regardless of type of construction. But above grade, the loss (8136) is less than half as great as the 16,824 Btuh shown last month for the above-grade part of the heat loss of the unfinished basement.

Building material dealers and their salesmen have been known to

leave the impression with a home owner that he can effect a very substantial fuel saving by installing this, that or the other kind of insulation or interior finish. In this particular case, for example, if the building material salesman shows that the U value of the bare 8 in. block wall is 0.52 and that of the wall with the interior finish we are considering here is 0.22, he might point out to a prospective customer that: 1) the proposed interior finish will reduce the heat transmission loss through that part of the basement wall above grade 58 percent, which is quite true; 2) this heat loss reduction will mean a substantial fuel saving. And who knows what is meant by "substantial"?

Let's see just how much it does amount to on the basis of design conditions. The detailed heat losses for first story rooms were given in the March American Artisan and those for the unfinished basement, in the April issue. For the finished basement, the losses are shown in Fig. 3. From this data we get the following totals for the house:

	House with unfinished basement	House with finished basement
First story rooms only, Btuh	45,064	45,064
Unfinished basement only, Btuh	25,104	—
Finished basement only, Btuh	—	16,416
Total heat loss of house, Btuh	70,168	61,480

Finishing the basement in this case resulted in a reduction of heat loss amounting to 70,168—61,480 Btuh = 8688 Btuh. Expressing this saving as a percent of the total heat loss of the house with unfinished basement, we get:

$$\frac{8688}{70,168} \times 100 \text{ percent} = 12 \text{ percent}$$

Hence, if we assume that fuel consumption is proportional to the heat losses under design conditions for the house with finished and unfinished basement, then we might be justified in saying that the owner would save about 12 percent—not 58 percent.

The dealer-contractor who figures these factors for his prospective customers soon establishes a valuable reputation as an especially well-qualified and thoroughly reliable heating man. It helps to 1) increase his sales, 2) reduce his selling costs and 3) build his profits.

PRACTICAL APPLICATIONS

for engineering, installing and servicing
residential cooling systems

An analysis of the factors which can affect the removal of heat from the refrigeration system to the cooling medium provides a clear picture of . . .



What to Expect from a Water Cooled Condenser

By S. W. Reid
Air Conditioning Engineer
Gilbert Associates, Inc.

LAST MONTH in American Artisan we discussed the rating of finned cooling coils which bring heat absorbed from air into a refrigeration system. This brings us to a consideration of one type of heat transfer device through which heat leaves a refrigeration system, the water cooled condenser.

Trace Refrigerant Cycle

To study the job done by the condenser, let us look at Fig. 1 which shows a pressure-heat diagram related to the various components of the refrigeration system. Point *A* represents refrigerant liquid in the condenser. To get to point *B*, the refrigerant passes through a controlled restriction such as an expansion valve or capillary tube. Notice that there is no change in heat content of the liquid during this process. It remains

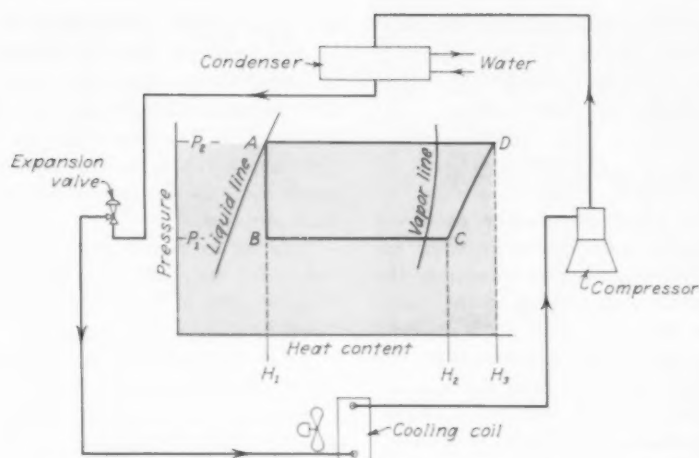
at a value H_1 as the pressure drops from P_2 to P_1 .

Point *B* represents low pressure liquid refrigerant entering the cooling coil. When it absorbs heat, the liquid boils and changes to vapor at point *C*. The heat gain per pound of refrigerant in the cooling coil is represented by $H_2 - H_1$.

Point *C* represents low pressure vapor entering the compressor. In this device mechanical energy is added to the refrigerant in raising its pressure from P_1 to P_2 at point *D*. By virtue of the work done on the vapor by the compressor, the refrigerant at *D* has $H_2 - H_2$ more energy than it had at point *C*.

Heat Removal Must Equal Gain

In order to return the refrigerant to its original condition at point *A* so it can repeat its cycle, heat must be



1 HEAT-PRESSURE DIAGRAM traces cooling process through refrigeration system, demonstrates effect of each component on refrigerant characteristics

removed in the amount of $H_3 - H_1$. This is the condenser's job. Notice that condenser heat or heat energy leaving the refrigerant is equal to the sum of the heat energy gained in the cooling coil plus the heat energy gained in the compressor. Mathematically this would be expressed as $H_3 - H_1 = (H_2 - H_1) + (H_3 - H_2)$.

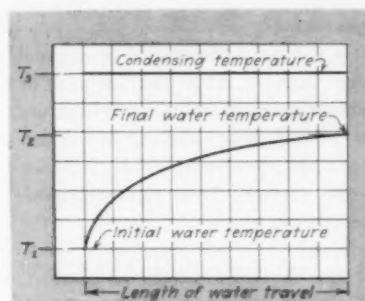
For a given refrigerant the amount of energy, $H_3 - H_2$, which the compressor adds is related to the evaporator and condenser temperatures or, respectively, to the corresponding pressures, P_1 and P_2 . For refrigerant no. 12, for instance, with an evaporator temperature of 40 F and a condenser temperature of 105 F, the compressor theoretically adds about 30 Btu per lb of refrigerant circulated for each ton of cooling done in the evaporator. When these temperatures are zero F and 10 F, compressor energy of 65 Btu per lb per ton is required. Since a ton of cooling in the evaporator is defined as 200 Btu per min., the condenser must be capable of releasing 230 and 265 Btu per min. per ton, respectively, for the two examples above. These values, of course, represent the sum of the heat absorbed in the evaporator and the heat put into the refrigerant by the compressor in each case.

Heat which leaves the refrigerant

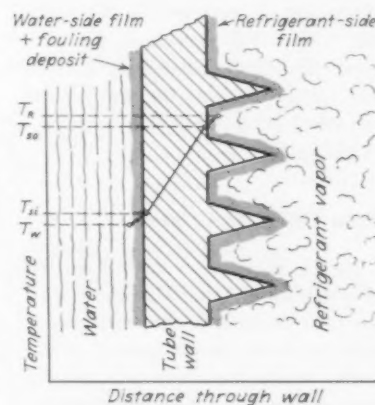
in the condenser is transferred to the condenser cooling medium, which in the present discussion is water. Heat flows out of the refrigerant, which is at a higher temperature than the water. Refrigerant condenses at a constant temperature which corresponds to pressure P_2 in Fig. 1, but the water to which the heat flows has a constantly rising temperature as it passes through the condenser. Fig. 2 on this page shows this relationship graphically.

Transfer Subject to 3 Factors

The amount of heat that can pass through the metal surface which separates the condensing refrigerant and the water is related to three factors: 1) the area of the heat transfer surface, 2) the coefficient of heat transfer, and 3) the temperature difference which exists. Since the temperature of the cooling medium is not constant, it is necessary to calculate a mean temperature difference between the two fluids in order to set up a convenient equation. Notice that the water temperature curve in Fig. 2 is not a straight line, and therefore the mean temperature of the water cannot properly be calculated as the average of its entering and leaving temperatures. The correct temperature difference is the logarithmic mean. Convenient tables for



2 REFRIGERANT CONDENSES at constant temperature which corresponds to pressure, while temperature of water (cooling medium) rises as it passes through the condenser



3 CONDENSER TUBE has refrigerant film on one side, water film on the other, which offer resistance to flow of heat. Temperatures are shown as: T_r = condensing refrigerant; T_{so} = outside tube surface; T_{si} inside tube surface; T_w = water

making this calculation may be found in catalogs of heat transfer equipment or in standard texts.

The mathematical expression for the heat flow in a condenser is

$$H = A \times U \times T_m$$

where H is Btuh, A is external area of the heat transfer surface in sq ft; U is the coefficient of heat transfer in Btuh per sq ft per deg F; and T_m is the logarithmic mean temperature difference in deg F.

Let us examine the heat transfer coefficient U , in a little more detail. It is calculated by combining a number of factors. Thus

$$U = 1 / [(R/h_i) + (R/h_t) + (1/h_e) + (1/h_m)]$$

in which

R is the ratio of external to internal tube surface; h_i is the internal or water-side film coefficient in Btu/h per sq ft of internal surface per deg F temp. diff. between water and the internal surface; h_f is the fouling allowance on the water side; h_o is the external or refrigerant-side coefficient; h_m is the combined conductance of fin and wall of the tube as determined by actual test or by calculation.

In examining the above equation, we are not to be concerned here with the mathematics of solving it nor with the rather tedious test procedures that are necessary to determine the various values used in the solution. We should, however, get the concept of the heat transfer process described by the equation and illustrated in Fig. 3.

Film Offers Resistance

Fig. 3 shows an enlarged section of a condenser tube. The line drawn across it represents the temperature gradient from the refrigerant to the water. Notice that there is a drop in temperature from the refrigerant to the outer wall of the tube. This is due to a refrigerant film of microscopic thickness which clings to the surface of the tube. It offers just as definite a resistance to the flow of heat through it as does a solid object such as the tube wall itself.

On the water side of the tube is the water film which also resists the flow of heat. The existence of these films has been proved by many tests, one of the most common of which is measurement of the velocity of a fluid flowing in a pipe. As the fluid approaches the pipe wall, its velocity decreases even though the velocity in the center of the pipe is high. At the pipe wall itself, the velocity is zero in the extremity of this film layer. The thickness of the surface film, and hence its conductance of heat, is a function of how much it is disturbed by the velocity and turbulence of the adjacent fluid. As an example, recall that the air film coefficient for a building wall surrounded by still air is 1.65 Btu/h per

sq ft per deg F, whereas the corresponding value for the same wall with a 15 mph wind blowing across it is 6.00.

Account for Scale Buildup

The factor h_f in the preceding equation is introduced to allow for the decrease in heat transfer as the result of scale buildup on the water-side surface. It would not be realistic to select a condenser which has enough surface to do its required job only when it is brand new. Experience has shown that there is an inevitable accumulation of oxides and deposits with even the most pure water.

Actual values of the various factors used to calculate a U value for a condenser are determined by test. They depend on design, refrigerant type, refrigerant loading, water velocity and water quality. As a rough example, for refrigerant no. 12 condensing on a finned copper tube, the refrigerant-side coefficient h_o may range from 400 to 600. The water-side coefficient h_i may range from 1100 to 1500. The fouling allowance h_f is generally 2000 but ranges to less than 100 for extremely poor quality water. Ratios of external to internal surface may range from

about 4 to 1 up to as much as 10 to 1. Five to one is about the optimum. Water velocities range from about 3 to 8 ft per second through the condenser tubes. The value of h_m is large for copper tubes, making $1/h_m$ so small it can be dropped for all practical purposes.

Now let us assume some average values for the coefficients. Let $R = 5$, $h_i = 1200$, $h_f = 2000$, $h_o = 500$. Then

$$U = 1 / [(5/1200) + (5/2000) + (1/500)] = 116$$

A condenser with a 116 U value and 12 F mean temperature difference would require approximately 10.8 sq ft of external tube surface per ton. If no fouling factor were included, U becomes 162, and the amount of surface per ton drops to 7.7 sq ft. If the fouling factor is doubled, U becomes 90, and the amount of surface required rises to 13.9 sq ft per ton. From this it is easy to see why condensers must be kept clean if they are to work within reasonable limits of their intended design.

Calculate Water Quantity

For estimating the water quantity required by small condensers used in package air conditioners, condenser heat is usually approximated at 250 Btu per min per ton. One gpm of water then can carry away this amount of heat if it is allowed to rise 30 deg in temperature. This is calculated from the fact that one Btu will raise 1 lb of water 1 deg F. Since a gallon of water weighs 8.33 lbs, $8.33 \times 30 = 250$. In other words, there are 30 gal-deg per ton. For example, a water range of 10 deg requires 30/10 or 3 gpm per ton. A water range of 20 deg requires 30/20 or 1½ gpm per ton.

As a rule, it is impractical to expect to maintain a condensing temperature of much less than 20 deg above the initial temperature of the water available. On the basis of 3 gpm per ton, a water temperature rise of about 10 deg would be expected, in accordance with the preceding equation, so the remaining 10 deg would be available for the difference between the condensing

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE defines air conditioning as follows:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirement of the conditioned space."

temperature and the leaving water temperature. Attempts to reduce the initial differential much below 20 deg would require such large increases in water quantity or the heat transfer surface that they would be out of proportion to the results achieved.

How Many Passes?

Associated with water cooled condensers, especially large models, is the number of passes. We saw earlier that the U value is not constant but increases with the velocity of water flowing through the tubes. The condenser may be arranged with only one pass. Here all tubes are in parallel, and water velocity is lowest. For a multi-pass condenser the water passes through one group of tubes and then another in series. Since only a fraction of the area is available in a multi-pass as compared with a single pass, the water velocity will be higher. In the second case, the higher velocity will result in a higher U value since the internal film will offer less resistance to heat transfer. There will, however, be a greater resistance to flow. Under certain conditions the latter may be undesirable — particularly when pumping costs must be considered.

Are Non-Condensables Present?

Condenser performance may be judged in the field by recording condenser pressure, liquid line temperature (as close to the condenser as possible), water inlet and outlet temperatures, and water quantity. Theoretically, the temperature (as determined from a refrigerant property table) which corresponds to the condenser pressure should be the same as the condenser temperature (as indicated by the temperature of the liquid at the condenser outlet). In actual practice, however, the temperature corresponding to the pressure may be somewhat higher. The reason for this is the fact that there may be some non-condensable gases, such as air, mixed with the refrigerant vapor. These gases are not likely to be present in a new factory-charged and

THIS SPECIAL SERIES

... on subjects of interest to residential air conditioning dealer-contractors is based on the author's wide experience and on constant analysis of the field by American Artisan's editors.

IT ALL BEGAN

... with a complete rundown on fundamentals in 20 articles beginning in August, 1952 American Artisan, describing basic operation of air conditioning equipment.

SPECIFIC PROBLEMS

... treated in the next phase of the series covered maintenance, service, installation and management.

NOW, PRACTICAL APPLICATIONS

... to solve common problems which have been experienced by the author and by dealer-contractors are covered in the current selection of case histories, procedure outlines and specific examples.

sealed system, but once the system has been opened for field servicing, air is more likely to be found in the system.

Recharge or Purge

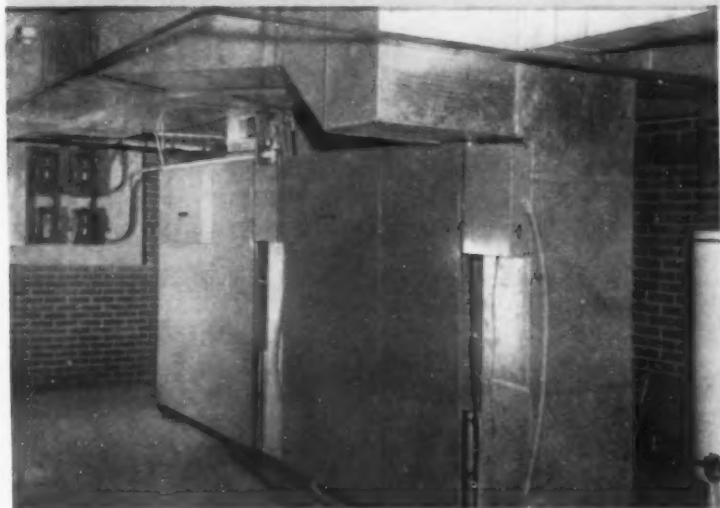
The possible presence of this air should always be kept in mind when refrigeration system performance is checked. If the actual condensing pressure is only several pounds above the pressure corresponding to the liquid temperature, the non-condensable gases need cause no concern. If, however, it should be found that the actual condensing pressure is as much as 20 to 25 pounds higher than indicated by the liquid temperature, the non-condensables must be removed. For small systems, the best procedure is to blow the refrigerant charge, evacuate and recharge. For large systems, the loss in refrigerant may be so costly that the system must be purged to keep the loss to a minimum. This is done by closing the liquid line valve and pumping the system down. The compressor is then stopped, but the condenser water is allowed to run for an hour or two to condense as much refrigerant vapor as possible. At the end of that time a valve in the top of the condenser shell is "cracked" open for an instant, then closed. The latter procedure is repeated several times. There is no way to check the results of

purging except by operating the system again and rechecking the temperatures and pressures as described.

Check for Over-charge

In our discussion of non-condensable gases, we assumed that the condensing temperature as measured on the liquid line near the condenser was normal with respect to the initial and final water temperatures and to the water quantity. We showed earlier that it is not practical to expect the condensing temperature to be any closer than 20 deg above the initial water temperature. In average applications it might be 30 deg above the initial and 10 deg above the final water temperature. If it is found to exceed these differentials greatly, either the condenser is too small (unlikely in a factory-built system) or the condenser heat transfer rate has been reduced by scale and dirt on the water side of the tubes. In the latter case, the situation is remedied by using a good chemical cleaning. If, after cleaning, the pressure is still high but the condenser is known to be the proper size, the system should be checked for an over-charge of refrigerant which is flooding out some of the condenser surface. Liquid refrigerant must be drained from the tubes as fast as it forms; otherwise the tubes will serve as sub-coolers and not as condensers.

Dual Heat Pump Job Meets Owner's Rigid Requirements



SPACIOUS MACHINERY ROOM especially designed to accommodate two heat pumps was the result of cooperation between architect and air conditioning dealer-contractor's salesman



LARGE GLASS AREAS and high ceilings in \$150,000 home presented problem for engineer who designed heat pump air distribution system

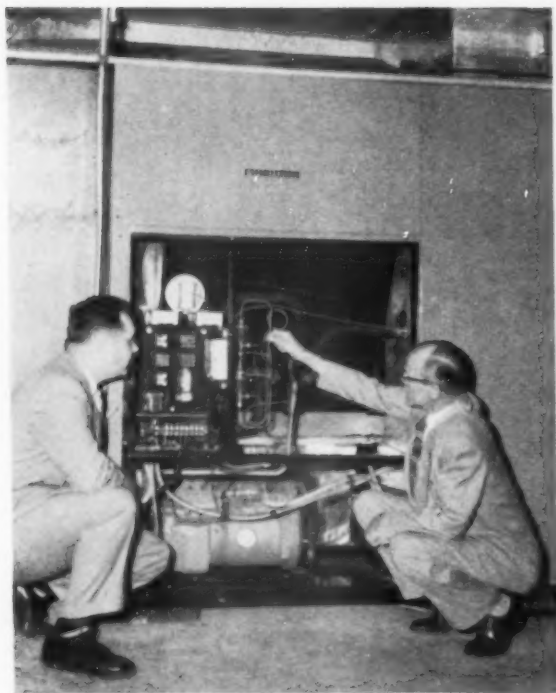
Ornate Italian motif in new home overruled normal equipment and air distribution specifications in this challenging job, which finally took form as two independent heat pump systems featuring skillful equipment camouflage and noise elimination techniques

THE PROCEDURES for selecting equipment and designing air distribution systems for most houses which employ heat pumps as the source of year 'round comfort have been pretty well established, but once in a while a customer will set up specifications that can be quite perplexing for an engineer who must adapt current industry practices to the limitations imposed by the customer's wishes. Such a problem was handed Kenneth A. Moore, Chattanooga Blow Pipe and Roofing Co., Inc., Chattanooga, Tenn. The customer had instructed the architect to design a 10-room ranch style house in an Italian motif. The customer imported a number of expensive ornamental fixtures, among which were two complete hand-

made ceilings and a number of elaborate chandeliers that required high ceilings in order to leave adequate head room.

"Modern" Equipment Must Be Hidden

Other decorations specified by the customer included panel type windows that reached from the floor to the ceiling, high archways between rooms and halls, and wood paneling along lower portions of the walls. He would not agree to cutting into any of these decorations to insert supply registers or return air grilles. Neither would he permit the use of floor registers to blanket the



INSPECTION OF INSTALLED equipment is performed by Chattanooga Blow Pipe Co. representatives Kenneth A. Moore and John Foy



HALLWAY along outside wall is conditioned with registers located according to perimeter system recommendations. Italian motif continues in hallway ceilings and windows

large glass areas. His reason for taking this position was that he had gone to considerable expense to create a certain effect in these rooms and wanted no modern equipment in evidence to detract from that atmosphere.

Early in the planning stages the engineers decided that the house, which contained two large wings at right angles to the front of the building, could best be year 'round conditioned by two independent systems, which would respond individually to the loads placed on them. The house is built over a crawl space, but the architect agreed to excavate a 15 X 25 ft basement room to accommodate the heat pumps, water heater and incinerator.

Air Source Heat Pumps Selected

The heat pumps use air as the source of heat for winter operation and as a means of providing a heat sink during the summer. Each heat pump has a summer capacity of 49,000 Btu at 95 F outside DB temperature and 80 F DB, 67 F WB inside condition. Under winter conditions each piece of equipment is rated to provide 54,000 Btu when outside temperature is below 35 F DB and the indoor temperature is 70 F DB. (Electric strip heaters provide supplemental heat when lower outside temperatures prevail.)

Indoor air delivery is rated at 2000 cfm for each heat pump. Each unit handles 3450 cfm of outdoor air. The control system provides automatic changeover from

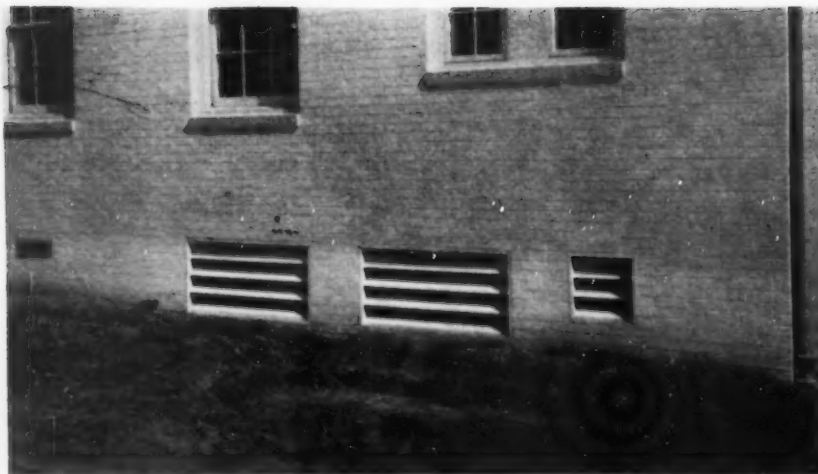
heating to cooling and vice versa. A separate switch makes it possible for the customer to interrupt the heat pump's operation and run the blower independently if ventilation alone is desired.

Noise is Taboo

Special consideration was required in designing the air distribution system because the customer had installed a central high fidelity phonograph system with outlets in every room. Any noise created by the air discharging at a high velocity (in order to direct it toward wall and glass areas exposed to a high rate of heat gain or heat loss) had to be eliminated. Thus, several supply openings were required to direct air streams toward the same exposed area. Ducts were located in the crawl space and were insulated internally to provide additional sound reduction. One interesting feature of this duct system is the large number of branch lines used. The total lengths of all trunk and branch ducts would be over a quarter of a mile.

Crawl Space Is Insulated, Unheated

Normally the Chattanooga Blow Pipe Co. provides warm air for crawl spaces but in this case, the architect had specified ½ in. rigid insulation beneath the floor and the engineers reasoned that providing heat to the crawl



AIR INTAKES FOR two heat pumps and an opening for makeup air to the air distribution system will be covered with shrubbery by the landscaper. Discharge openings are on another side of foundation

space would not contribute significantly to a high floor temperature. Accordingly, the crawl space was provided with an adequate number of vent openings.

Makeup Air Taken from Outside

Makeup air is introduced into the return air side. Six hundred cfm or about 18 percent enters through the grille located in the outside wall. This intake is located near two larger intakes, one for each heat pump. The discharge air outlet from each heat pump was installed around a corner of the building, to prevent short cycling of the used air. The landscaping contractor provided shrubbery that would not wilt even though the heated air is discharged at about 900 fpm. He was cautioned to provide sufficient room at the intake openings so shrubbery would not block the air flowing to the louvered openings. Air moves at about 500 fpm through the intake opening.

Each unit has a condensate drain which is connected to the pan under each coil. The condensate drain for the units used in this installation is made of $\frac{3}{4}$ in. pipe connected to the unit with a rubber hose which serves as a sound absorber for the machinery noise that could be transmitted to the section of iron pipe. The drain leads to a dry well in the machinery room floor. The condensate drains from the pans to the dry well.

Condensate Drain Needed in Winter

The condensate drain is as important during winter operation as it is in the summer, because when the heat pump operates on the heating cycle and the outside temperature drops near freezing, there is a tendency for the outside coil to frost. Formation of frost on this coil will increase the pressure drop of the air flowing over the coil, and the increased pressure drop is sensed by a defrost switch. When the defrost switch setting is reached,

the defrost relay and defrost booster relay become energized. The defrost relay de-energizes the heating solenoid and the outside fan motor. It also causes the cooling solenoid to become energized.

The compressor discharge pressure will force the transfer valve piston down causing the heat pump to operate for a short period on the cooling cycle, but with the outside air fan turned off. The hot gas from the compressor enters the outside air coil and melts the frost. When the frost has melted, the compressor head pressure increases rapidly. Because no air is passing over the outside air coil, the pressure reaches the defrost limit switch setting (normally between 110 and 135 psig). The pressure then causes the defrost relay and defrost booster relay to de-energize. The heat pump unit then returns to its normal heating cycle.

A normal defrost cycle takes about six minutes. When the unit goes into the defrost operation, the defrost booster relay provides the heat necessary to keep the house from being excessively cooled.

Trend Favors Air Source Units

The steady growth in number of residential heat pumps has been accompanied by a strong trend in favor of the air source heat pump model. Between the years 1946-1954, approximately 29 percent were air source and 71 percent used water as the source of heat. In 1955 the ratio reversed with 67 percent of the systems installed using outside air as the source and 33 percent using water. In 1956 the new trend continued with the ratio moving to 77 percent of the installations in favor of the air source heat pump.

The editors acknowledge the cooperation of John Foy, sales manager and Kenneth A. Moore, sales engineer of the Chattanooga Blow Pipe and Roofing Co., Chattanooga, Tenn. in providing the information for this article.

AMERICAN **ARTISAN**

.. The Magazine of

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING



OHI SHOW SECTION



**EXPOSITION
AND
CONVENTION**

New York City

June 9-12, 1958



R. H. L. BECKER
OHI managing director



K. L. WILSON
Convention chairman



J. VERNE RESEK
President of OHI



D. H. BOTRILL
OHI technical secretary

Here's your guide to the 1958

OHI Convention and Exposition

. . . including discussion topics, program
schedules and list of exhibitors with products and personnel

"ENTER THE PROFITSPHERE IN '58" is the theme for the 22nd National Oil Heat and Air Conditioning Exposition scheduled for New York City Coliseum June 9-12, and the 36th annual Oil-Heat Institute convention at the Park Sheraton Hotel June 10-12.

Convention activities are under the direction of K. L. Wilson, Minneapolis-Honeywell Regulator Co., who says, "This is the time to organize the power of the industry individually and collectively to increase sales and profits through greater public acceptance of our products. One big objective of the convention is to help you know your business better, how to improve it and be enthusiastic over it. That's why we have the slogan, 'Enter the Profitsphere in '58'. You'll be in orbit in the 'Profitsphere' at the convention, surrounded by confidence, knowledge and enthusiasm in an atmosphere of informed reappraisal."

Convention sessions have been scheduled only during morning hours (9 to 11:45) so they will not interfere with attendance at the exposition

which will be opened Monday through Thursday from 1 to 10 p.m.

Programs for the convention sessions are designed to provide information of interest to both management and technicians. The first technical session is Tuesday at 9 a.m. Papers to be presented are:

Research on Fuel Oil Combustion and Burner Design, by B. R. Walsh, Gulf Research & Development Co.

A Burner Service Record System That Saves Time and Money, by M. S. Reed, Socony Mobil Oil Co.

Vital Elements of a Good Oil Heating Installation, by R. L. Dennis, Boston Machine Works Co.

Good Installation and Servicing Practices, by Albert Brand, Brand's Heat Control, Inc.

An Installation Standard for Residential Oil Heating Equipment, by D. H. Bottrill, technical secretary of OHI.

A short question and answer period will follow the presentation of each paper.

On Wednesday and Thursday, dealer-contractor management clinics will begin at 9 a.m. These clinics are

designed to provide new ideas, new conceptions on how to improve certain management functions and how to earn more money with less trouble.

Panels, Conferences Featured

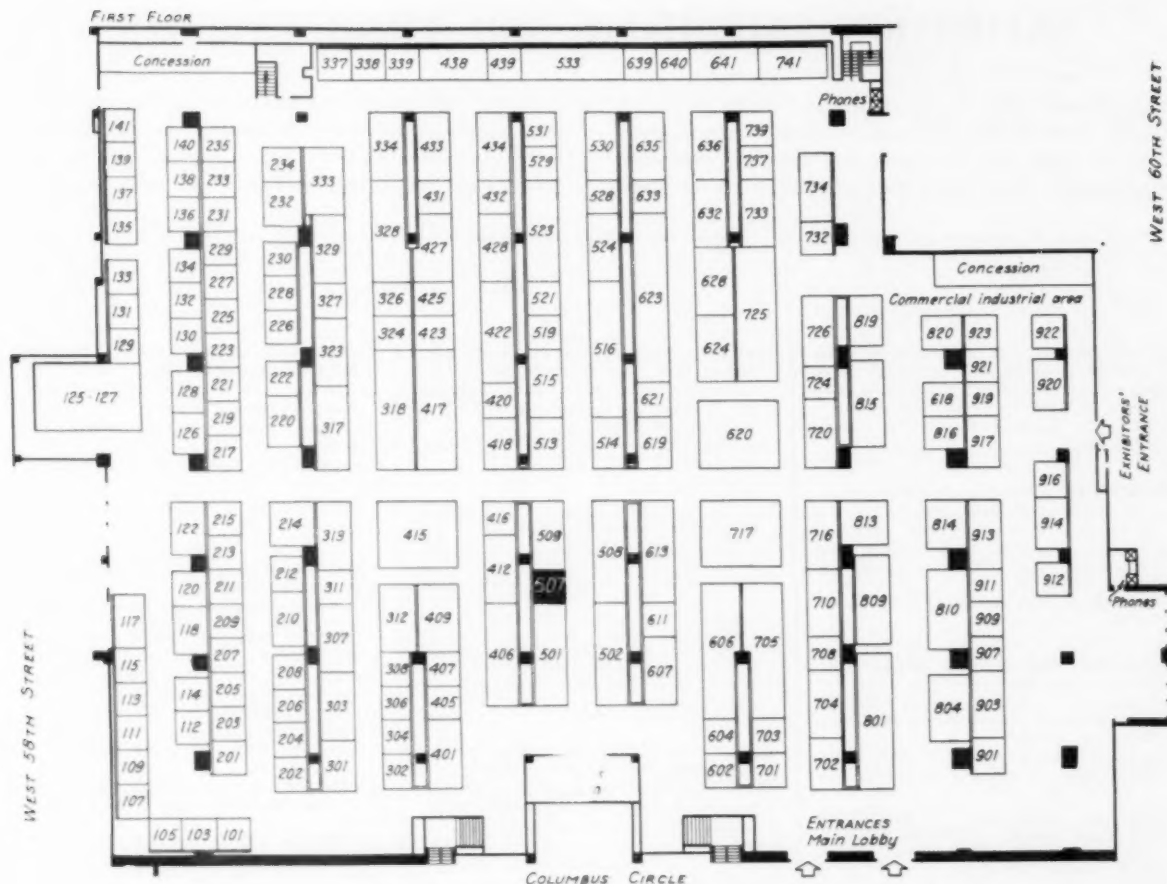
A program feature each day will be a panel of experts — top men of several fields. Each panelist will speak for 15 minutes on his assigned topic, then will leave the room and adjourn to a specific area where he'll be available for private consultation.

The "Old Timers" will hold a jam-boree at 6 p.m. Tuesday. Over 300 members of the auxiliary are expected to attend the affair.

EXPOSITION HOURS

The exposition will be open:

Mon., June 9	1:00 - 10:00
Tues., June 10	1:00 - 10:00
Wed., June 11	1:00 - 10:00
Thurs., June 12	1:00 - 10:00



Booth Layout, New York City Coliseum

See listings of booths, pages 72-75

American Artisan's Booth No. 507

PROGRAM

Park-Sheraton Hotel

Monday, June 9

- 9:00 - 11:00 a.m. Annual Meeting Domestic Manufacturer Section
- 9:00 - 11:00 a.m. Annual Meeting Accessory Division
- 9:00 - 11:00 a.m. Annual Meeting Commercial-Industrial Sections

9:00 - 11:00 a.m. Annual Meeting Technical Division

9:00 - 11:00 a.m. Retiring Board of Directors and Annual Meeting, Distribution Division

11:00 - 12:00 a.m. Retiring OHI Board of Directors and Annual OHI Meeting

1:00 - 10:00 p.m. — 22nd National Oil Heat and Air Conditioning Exposition

Tuesday, June 10

9:00 - 11:45 a.m. Technical Division Service and Installation Symposium

1:00 - 10:00 p.m. 22nd National Oil Heat and Air Conditioning Exposition

Wednesday, June 11

9:00 - 11:45 a.m. Distribution Division Dealer Management Clinics

10:30 - 11:45 a.m. Commercial-Industrial Conference

12:30 - 2:30 p.m. 36th Annual OHI Luncheon

1:00 - 10:00 p.m. 22nd National Oil Heat and Air Conditioning Exposition

Thursday, June 12

9:00 - 11:45 - Distribution Division Dealer Management Clinics

1:30 - 4:00 p.m. OHI Secretaries Seminar

1:00 - 10:00 p.m. 22nd National Oil Heat and Air Conditioning Exposition

EXPOSITION EXHIBITORS AND THEIR EXHIBITS

Here are the names of the exhibitors who are scheduled for the National Oil Heat and Air Conditioning Exposition, per latest advice at press time from the exposition management. Those listed with information on the prod-

ucts they will exhibit and the names of representatives who will be in attendance furnished these details direct to the publisher. With the booth numbers and the diagram of the exhibit hall, exhibitors are easily located.

(See layout of exhibit hall on page 71)

AKRON RUBBER CO., 33 Warren St., New York, N. Y.—Booth 215

In attendance: W. S. Low, Jr., C. N. Harrington, A. A. Boris.

Exhibiting: "Goodyear Plotron" electrostatic air cleaner.

ALDRICH CO., Wyoming, Ill.—Booth 513

In attendance: P. M. Stephenson, N. Howard, B. Mulder.

Exhibiting: "Heat-Pak" low pressure steel boiler-burner units, hot water heaters, conversion oil burners.

New Products: High delivery hot water heaters, boiler-burner units.

AMERICAN ARTISAN, 6 N. Michigan Ave., Chicago 2, Ill.—Booth 507

In attendance: Wallace J. Osborn, Robert A. Jack, Robert J. Osborn, Clyde M. Barnes, Richard G. Osborn.

Exhibiting: American Artisan, technical books, market data.

AMERICAN RADIATOR & STANDARD SANITARY CORP., PLUMBING & HEATING DIV., 40 W. 40th St., New York 18, N. Y.—Booths 328-330-332

Exhibiting: Boilers, baseboard heating panels, year 'round heating-cooling systems, residential chiller, oil burners.

New Products: Non-ferrous baseboard heating panels, "Arcolader" oil-fired boiler, "Remotaire" residential air conditioning unit, horizontal room air conditioner.

AUTO-FLO CORP., 12085 Dixie St., Detroit 39, Mich.—Booth 737

In attendance: Bernard Magiday, Hal Michelman, P. J. Halter, B. L. Rushton, Ben D. Waller, Harold E. Goodwin, Alexander P. McCall, Sam Baker.

Exhibiting: Automatic humidifiers, evaporator plates, oil filters, oil filter cartridges.

New Products: "Fairway" humidifiers, No. 165 evaporator plates.

AUTOMATIC DEVICES CO., INC., 714 Hillgrove Ave., Western Springs, Ill.—Booth 640

In attendance: Henry T. Kucera, Robert G. Davis, James J. McAdams, Hervey A. MacVicar, Martin Heffler.

Exhibiting: Outdoor-indoor type temperature controllers, "Weather-Flo", "Weather-Chron", and "Weather-Man" regulators.

New Products: Three-way indoor-outdoor controller developed especially for use in residential installations.

BACHARACH INDUSTRIAL INSTRUMENT CO., 7301 Penn Ave., Pittsburgh 8, Pa.—Booth 302

In attendance: R. Ulrich, J. A. Stein, J. W. Smith, J. V. Palmer.

Exhibiting: "Fyrite" combustion testing kits, "Tempscribe" temperature and operation recorders, "Florite" air velocity meters, "Tempoint" air circulation thermometer, filter gages.

New Products: "Floret" air velocity indicator.

BELL & GOSSETT CO., 8200 N. Austin Ave., Morton Grove, Ill.—Booths 317-321

In attendance: R. E. Moore, R. A. Patterson, W. A. Boone, H. R. Henke, Frank Gall, A. B. Meeg, J. A. Ivester.

Exhibiting: "Hydro-Flo" products for heating and cooling.

BOSTON MACHINE WORKS CO., 7 Willow St., Lynn, Mass.—Booths 530-532

In attendance: Ralph L. Dennis, I. M. Nelson, H. C. Walters, Fred Bottiger, Edward C. Black, Walter F. Briges, B. Howard Nunnally, L. E. Schulein, John M. Sibarium.

Exhibiting: "Apthorp True Alignment" nozzles, "Instant-Glo" combustion chambers, "Ideal" nozzle extractors, "Clearview" oil tank gages, draft stabilizers, nozzle service kits, "Hang Down" baffles, "Wigwam" thermcap, combustion heads.

BRYANT MFG. CO., 2020 Montcalm St., Indianapolis, Ind.—Booths 406-408-410

In attendance: David W. Hoppock, William M. Day, W. J. Chappell, Malcolm McLean.

Exhibiting: Oil furnaces, oil boilers, air conditioners.

BURNHAM CORP., BOILER DIV., 2 Main St., Irvington, N. Y.—Booths 623-625-627-629-631

BURROUGHS CORP., Detroit 32, Mich.—Booths 329-331

In attendance: Greg Doyle.

Exhibiting: A delivery record accounting system.

CASH VALVE MFG. CO., A. W., 666 E. Wabash Ave., Decatur, Ill.—Booths 710-712

CHOLDUN MFG. CO., 551 East St., New Haven, Conn.—Booth 234

CLEVELAND CONTROLS, INC., 1111 Brookpark Rd., Cleveland 9, O.—Booth 916

In attendance: N. F. Hahn, J. C. Weinberg, J. P. Metz, A. A. Kraft, R. M. Benington.

Exhibiting: Draft controllers, power actuators, master controllers, air safety switches, indicating instruments, smoke indicators, metering controls, panel control centers.

New Products: Air safety switches for heating, ventilating and air conditioning applications; draft controllers with proportional band; master regulator with proportional band, adjustable maximum firing rate selector and control set point.

COLUMBIA BOILER CO. OF POTTSTOWN, Box 230, Pottstown, Pa.—Booths 734-736

In attendance: J. G. Howley, E. C. Beswick, W. Garry, E. Gallagher, R. Flora, V. Beno, R. Boorman, J. Meade.

Exhibiting: Low pressure steel heating boilers, high pressure steel heating boilers, oil burners, baseboard radiation.

New Products: Tubular type boilers.

COMMERCIAL FILTERS CORP., 2 Main St., Melrose, Mass.—Booth 602

In attendance: H. Wilson, J. Chisholm, A. E. Poole, G. Frees, A. Ballard, T. Ames.

Exhibiting: "Fulflo" filters, "Honeycomb" filter tubes.

New Products: "Honeycomb" filter tubes.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.—Booths 524-526

DEHAVAN MFG. CO., 811 4th St., West Des Moines, Ia.—Booth 539

In attendance: Fred Mulcahy, Robert E. Keene, E. O. Olson, L. N. Beardsley, W. J. Thurston, W. J. Debler, H. J. Waff, J. R. Starnes, W. A. Roben.

Exhibiting: Nozzles, nozzle accessories, flame inspection mirrors, nozzle tool kits, nozzle boxes, nozzle changers, nozzle strainers.

New Products: All purpose nozzle, sintered filter, "48" nozzle box, nozzle changer.

DIELECTRIC PRODUCTS CO., INC., 125 Virginia Ave., Jersey City 5, N. J.—Booth 420

In attendance: H. T. Carey, P. Krueger, T. Roman, L. F. DiNicola.

Exhibiting: Ignition electrode assemblies, high tension terminals and fittings, cable and cable assemblies for oil burners.

New Products: Electrode assemblies.

DOLE VALVE CO., 6201 Oakton St., Morton Grove, Ill.—Booths 632-634

In attendance: James W. McGuire, H. H. Aronson, J. F. Lund, J. Edgett, W. Adelman, George Martin, L. Eliscu.

Exhibiting: Air valves for steam heating systems, automatic domestic hot water air valves, automatic registers.

New Products: Water flow controls, shower controls, relief valves.

ECONO PRODUCTS CO., INC., DIV. OF VIKING INSTRUMENTS, INC., East Haddam, Conn.—Booths 534-536

In attendance: Daniel Doane, G. Rycek, John F. Glump, William Herman, L. Knapp.

Exhibiting: Circulators, flow control valves, low water cutoffs.

New Products: Zone control valves.

FDDINGTON METAL SPECIALTY CO., Ed-dington, Pa.—Booths 509-511

In attendance: Stanley Czarnecki, Walter Czarnecki, Casimer M. Czarnecki, Wesley Czarnecki, Stanley Czarnecki, Jr., John J. Intintolo, Richard Connel.

Exhibiting: High and low pressure nozzles, filters, combustion heads, strainers, inspection mirrors, servicemen's kits, pressure regulating valves, condensate disposal unit, air cones, stabilizers, nozzle adapters.

New Products: Model C-12 condensate disposal unit for air conditioning.

EDWARDS ENGINEERING CORP., 101 Alexander Ave., Pompton Plains, N. J.—Booths 307-309

In attendance: R. C. Edwards, J. E. McGinnis, S. T. Craig, E. A. Bogucz, S. Schwartz.
Exhibiting: Zone controlled residential boilers; white, copper and chrome baseboard; zone control valves.
New Products: Motorized zone valves, colored jacket boilers.

ELECTRIC FURNACE-MAN, INC., 4th & Furnace Sts., Emmaus, Pa.—Booths 409-411
In attendance: George Hewitt, George Lenza, Stewart Beaubien, Harry Campbell, John Cooke, Arthur Ennis, Arthur Floyd, John Hughes, Glenn Kepner, C. H. Olandt, Harrison Stortz, George Warner, E. A. Emmert.
Exhibiting: Oil fired boiler burner unit, furnace burner unit, conversion oil burner.
New Products: Packaged boiler burner unit.

ELECTROFILE CORP., 420 Lexington Ave., New York, N. Y.—Booth 439

ELECTROL BURNER MFG. CO., INC., 22 Union Ave., Rutherford, N. J.—Booth 816
In attendance: R. F. Andler, L. W. Schroeder, M. B. Andler.
Exhibiting: Conversion oil burners.
New Products: Oil burners for No. 4 oil.

ELECTRONICS CORP. OF AMERICA, COMBUSTION CONTROL DIV., 1 Memorial Dr., Cambridge, Mass.—Booths 903-905

EMERSON ELECTRIC CO., 8100 Florissant Ave., St. Louis 21, Mo.—Booth 407

EMPIRE CHEMICAL PRODUCTS CO., 10 Longworth St., Newark 2, N. J.—Booth 901
In attendance: M. A. Trivisano, J. E. White, Jr.
Exhibiting: Industrial furnace and boiler cleaners.

FIELD CONTROL DIV., H. D. CONKEY & CO., Mendota, Ill.—Booths 720-722
In attendance: Harry J. Potter, Henry Remsburg, Leo Pfister.
Exhibiting: Barometric draft controls for domestic, commercial and industrial installations for heating and processing equipment.
New Products: "Triple-fuel M + MG2" barometric draft control for commercial and industrial installations.

FOSTORIA PRESSED STEEL CORP., Fostoria, O.—Booth 405
In attendance: E. W. Kuhn, J. J. Sweeney.
Exhibiting: Circulating pumps.
New Products: Model 400-A booster pump.

GENERAL CONTROLS CO., 801 Allen Ave., Glendale, Calif.—Booths 421-423-425
In attendance: J. F. Ray, Fred Welton, Hugh Cameron, Russ Strongman, W. Lord.
Exhibiting: Oil primary controls, solenoid valves, thermostats, "Perfexray" burner, mean temperature difference control.
New Products: Thermostat, indoor-outdoor temperature control system.

GENERAL ELECTRIC CO., Morrison, Ill.—Booths 306-308
In attendance: D. J. Harrington, W. L. Moorhead, P. D. Fitzgerald, L. D. Thompson, J. Brandenstein, J. A. Uttal, J. J. Byrne.
Exhibiting: Thermostats, primary controls, flame detectors and other heating controls, relays, air conditioning controls, air conditioning panels.
New Products: "Straight Line" thermostat.

GENERAL FILTERS, INC., 43800 Grand River Ave., Novi, Mich.—Booths 607-609
In attendance: Robert G. Gregory, Roland A. Redner, Robert P. Redner, Mrs. Grace Redner, William Proctor.

Exhibiting: Fuel oil filters, "Unifilters", humidifiers.
New Products: Model 800 general humidifier.

GENERAL FITTINGS CO., P. O. Box 151, East Greenwich, R. I.—Booths 626-624

In attendance: Horace F. Horton, John Belham, Robert F. Hull, Donald E. Hare, John J. Cotter, Edmond Fain, Vaughn Gooding, Charles A. Maine, William K. Near, Earl H. Nielsen.
Exhibiting: Tankless water heaters, converters, instantaneous water heaters, fuel oil heaters, water mixing valves, "Testite" solder fittings, pipe unions, electric heating elements, heating specialties.

GERWIN INDUSTRIES, INC., THERMO-BASE DIV., 214 Spring St., Michigan City, Ind.—Booth 214

In attendance: L. C. Cotts, R. Cullom.
Exhibiting: "Thermo-Base" residential, commercial, glass wall models.
New Products: "Super Thermo-Base", glass wall "Thermo-Base".

GILBERT & BARKER MFG. CO., West Springfield, Mass.—Booths 501-503-505
In attendance: W. N. Heseltine, H. J. Lanyon.
Exhibiting: Oil burners, oil fired boilers, warm air conditioners.

GROSS FURNACE MFG. CO., INC., 146 W. Fourth St., Salem, Va.—Booths 533-534-535
In attendance: J. J. Gross, S. Gross, George H. Green.
Exhibiting: Oil-fired floor, horizontal and low-boy furnaces.

GULF OIL CORP., P. O. Box 1166, Pittsburgh, Pa.—Booths 523-525-527

HAGO PRODUCTS, 1120 Globe Ave., Mountsides, N. J.—Booth 232
In attendance: Herman J. Harsch, Werner Theurer, E. B. Glendenning.
Exhibiting: Oil burner nozzles and components.
New Products: Nozzle racks.

HAYWARD OIL BURNER CORP., 86 Kirkland St., Cambridge 38, Mass.—Booth 431
In attendance: Roland W. Campbell, Thomas H. Deehan.
Exhibiting: Rotary atomizing oil burners, pressure atomizing oil burners.
New Products: Rotary atomizing oil burners.

HEAT-TIMER CORP., 657 Broadway, New York 12, N. Y.—Booth 423
In attendance: Albert Fowler, Harry Zeitlin.
Exhibiting: Electronic weather control, "Smoke-Eve" indicating smoke alarm, heat recorder, smoke recorder, "Varivalve" air venting radiator valve, automatic burner shutdown and reset control.
New Products: "Zonvalve" thermostatically controlled, motorized valve for zone control.

HEIL-QUAKER CORP., 712 Eighth Ave., S., Nashville 3, Tenn.—Booths 606-608-610-612
In attendance: Fred R. Zwanig, Karl Mould, J. E. Fahl, R. J. Heiting, F. M. Jordan, G. E. Hochstein, Charles Kahl.
Exhibiting: Oil furnaces, oil boilers, oil conversion burners, self-contained air conditioning units.
New Products: "Slim Jim" horizontal oil furnace.

HEWITT-ROBINS, 666 Glenbrook Rd., Stamford, Conn.—Booth 324
In attendance: C. W. Haines, R. A. Gifford, J. Lynch, J. Sullivan, C. Hastings.
Exhibiting: Hose, reels, meters, pumps, fittings.

HILTI RAPID FASTENING SYSTEMS, INC., 55 Vandam St., New York 13, N. Y.—Booth 202

In attendance: H. P. Rossiger, Henry J. Shillings, Bart Roomey, D. Schechtman, W. E. Pestalozzi.
Exhibiting: Drive tools and "conic" fasteners.
New Products: Model T-25H drive tool.

INDUSTRIAL COMBUSTION INC., 4507 N. Oakland Ave., Milwaukee 11, Wis.—Booths 804-806

In attendance: J. V. Resek, H. J. McCoy, W. J. DeMuth, Frank M. Wymbs, Frank Wymbs, Jr., W. P. Gilbert, George Halliday, Thomas M. Walczak.
Exhibiting: "Hev-E-Oil" burners and "Hev-E-Duty" combination oil and gas burners.

IRON FIREMAN MFG. CO., TIMKEN SILENT AUTOMATIC DIV., 3170 W. 106th St., Cleveland, O.—Booths 636-638

JAY ZEE MFG. CO., 10623 Ridgeland Ave., Oaklawn, Ill.—Booth 432
In attendance: Jerome Z. Harmon, Carl E. Fink, Stanley F. Lorenzano.
Exhibiting: "Clearite" tester.

JEFFERSON ELECTRIC CO., 25th Ave., & Madison, Bellwood, Ill.—Booth 619

JOHNSON DEGREE DAY SYSTEMS, 329 S. Pitcher St., Kalamazoo, Mich.—Booth 529
In attendance: Thomas O. Johnson, Russell Boone.
Exhibiting: "Fuel Demand" systems.

JOHNSTON CO., S. T., 940 Arlington Ave., Oakland 8, Calif.—Booths 801-803-805
In attendance: D. E. Johnson, W. J. Trombly, A. Dimick, Robert P. Johnston, Walter E. Lees, W. S. Harlacher, Sr., Frank Scalia, Ray Knapp.
Exhibiting: Commercial, industrial and residential oil burners and combination oil or gas burning equipment.
New Products: Rotary and pressure type forced draft burners.

KOVEN & BROTHER, INC., L. O., 154 Ogden Ave., Jersey City 7, N. J.—Booth 220
In attendance: Arthur R. Hanson, Edward Wodecka, Sy Dorfman, Kenwood Hanson, Paul Gelston.
Exhibiting: Oil fired packaged units.

LAKE CHEMICAL CO., 3052 W. Carroll St., Chicago 12, Ill.—Booths 427-429
In attendance: B. Lytton, L. Aronberg, C. Kleiman, Don Lytton, M. Leffler, R. Feery.
Exhibiting: Soldering flux.

New Products: Demonstration of "Oylite-Stik" showing on-the-spot repair and sealing of spurring oil leaks in fuel tanks and fuel oil containers.

MANVILLE BOILER CO., INC., Hackettstown, N. J.—Booth 813

MAR-COIL HEATER CO., 200 Paterson Plank Rd., Union City, N. J.—Booth 528
In attendance: Nathan Marcus, George Marcus, Arthur Marcus, A. Morton Marcus, Sol Patsiner.
Exhibiting: Boiler stands, silencers, fuel oil gauges, motorized steam gate valves, tankless heaters.

MASTER-CRAFT SUPPLY CO., INC., 118 E. Railroad Ave., West Haverstraw, N. Y.—Booth 327
In attendance: Howard Hurwitz, Joseph Bernard.

Exhibiting: Furnace vacuum cleaners, industrial vacuum cleaners, replacement parts and attachments.

New Products: "Sootmaster" model 581, "Resist-All" dust bags.

MCDONNELL & MILLER, INC., 3500 N. Spaulding Ave., Chicago 18, Ill.—Booth 418

In attendance: E. N. McDonnell, N. W. Swanson, J. W. James, W. E. Gleeson, Richard Berry, Howard Peary, J. W. Ramsay, Eugene Mitchell.

Exhibiting: Water feeders, low water cut-offs, pump controls, relief valves, flow switches, float valves, float switches.

New Products: Flow switches, relief valves.

METALMASTER CORP., 66 Elm St., Newark 5, N. J.—Booth 521

In attendance: Eugene Peters, Allan Damasek, Sydney Cohen, A. August, Sidney Schwartz, Irving Suss, Sidney Gitterman, George Green.

Exhibiting: Oil burners, hot water circulating pumps, flow check valves, sump pumps, deep and shallow jet well pumps.

MINNEAPOLIS-HONFWEIL REGULATOR CO., 2753 4th Ave., S., Minneapolis 8, Minn.—Booths 725-727-729-731

In attendance: K. L. Wilson, K. W. Schick, T. McDonald, T. A. Reed, R. N. Keppel, A. Michelson, F. Kaiser, H. E. Williams, W. E. Dobie, W. Caddle, J. D. Reilly.

Exhibiting: Relays, warm air limit controls, hot water limit controls, residential air conditioning panels, heating and/or cooling thermostats, warm air zone control systems, hot water zone control systems, indoor-outdoor control system, electronic combustion safeguard equipment.

New Products: Indoor-outdoor control system.

MONARCH MFG. WORKS, INC., 2501 E. Ontario St., Philadelphia 34, Pa.—Booths 716-718

In attendance: T. W. Murphy, E. B. Frame, C. E. Fink, W. M. Fink, J. C. Underwood, W. H. Hulick, F. S. Bartlett, R. F. Stone, E. S. Gallagher.

Exhibiting: Oil burner nozzles, nozzle boxes, cabinet and display rack, nozzle tools, inspection mirrors, combustion head and other air mixing equipment.

New Products: Nozzle remover, nozzle display rack.

MONROE CALCULATING MACHINE CO., Orange, N. J.—Booth 501

MORSE-SMITH-MORSE CO., 165 Dexter Ave., Watertown 72, Mass.—Booth 701

In attendance: John C. Dieselman, Robert P. Johnston.

Exhibiting: "Firomatic" fire valves, thermal switches, oil filters.

MOTOROLA COMMUNICATIONS & ELECTRONICS INC., 4501 W. Augusta Blvd., Chicago 51, Ill.—Booth 611

In attendance: Gene Bird, William King.

Exhibiting: Two way radio.

NATIONAL-U. S. RADIATOR CORP., HEATING & AIR CONDITIONING DIV., 944 Ash St., Johnstown, Pa.—Booths 620-622-719-721

In attendance: F. S. Hudson, J. W. LeRoy, W. D. Braden, G. O. Gould, C. J. Philage, R. K. Bales, J. F. Canyock, E. J. O'Loughlin, T. C. Lewis, E. Eimersen, A. R. Simonet, T. F. Walter, G. G. Camas, Samuel Yingst, Gordon Dunn, E. M. Kastor, H. F. Muth, Walter Serafin, F. W. Eichler, A. J. George.

Exhibiting: Commercial cast iron oil heating units, commercial steel oil heating units, packaged steel oil heating units, packaged cast iron oil heating units and boilers, baseboard and air conditioning equipment.

New Products: "Sunray IV" packaged cast iron oil heating units and boilers, air conditioning equipment.

NEW ENGLAND TANK LINING CO., 75 E. 2nd St., Mineola, L. I., N. Y.—Booth 639

OHI INSURANCE TRUST, 500 Fifth Ave., New York, N. Y.—Booths 741-742

OIL EQUIPMENT MFG. CORP., 169 Derby Ave., New Haven, Conn.—Booth 217

In attendance: Arnold J. Alderman, Sidney J. Horton, Fred Maretz, Richard Duckwell.

Exhibiting: Vent caps, fill boxes, combination gage and alarm, audible alarms, tank gage, tank bushings.

New Products: Combination gage and alarm, compression type audible tank signal, union type audible tank signal.

OLSEN MFG. CO., C. A., Elyria, O.—Booths 620-622-719-721

In attendance: R. N. Campbell, Edward P. Hayes, James Crombie, W. H. Olsen, C. L. Grandstaff, Eston G. Swain, J. P. Cullin, E. J. Marre, Jr., James S. Garber.

Exhibiting: "Luxaire" oil-fired upflow, counterflow, basement and horizontal winter air conditioning units; air cooled and water cooled summer air conditioning units; year 'round air conditioning units.

New Products: Cutaway model of pre-assembled and wired oil-fired winter air conditioning unit, cutaway model of counterflow year 'round air conditioning unit.

PARKE-HILL CHEMICAL CORP., 29 Bertel Ave., Mt. Vernon, N. Y.—Booths 815-817

PENN CONTROLS, INC., Goshen, Ind.—Booths 313-315

In attendance: H. M. Carnahan, P. O. Penn, R. H. Luscombe, F. X. Fessler, C. Morgan, A. Barr, G. Sander, C. Pestow, J. Corbett, J. Garrett, F. Halloran, J. McCaffrey.

Exhibiting: Automatic controls for oil heating and air conditioning.

New Products: Triple function hot water control, "Rimset" thermostat for heating and air conditioning applications, air conditioning control centers, air conditioning limit controls.

PETRO DIV., IRON FIREMAN MFG. CO., 3170 W. 106th St., Cleveland 11, O.—Booths 913-915

In attendance: Jess R. Crews, George Martinik, J. E. O'Donnell, James Hare, Charles Bailey, George Moore, W. Hegan.

Exhibiting: Industrial and commercial equipment, both natural and forced draft.

PULLMAN VACUUM CLEANER CORP., 25 Buick St., Boston 15, Mass.—Booth 416

In attendance: Edgar A. Green, Saul A. Fern, Gerald Joachim.

Exhibiting: "Never-Clog" furnace and boiler vacuum cleaner.

New Products: Drum adapter.

QUALITY SPECIALTY CO. INC., 28th St. & Lincoln Ave., Camden, N. J.—Booth 531

RADIANT UTILITIES CORP., 8817 18th Ave., Brooklyn 14, N. Y.—Booths 323-325

In attendance: Arthur A. Marcus, Joseph Bloom, Frank G. Lowe.

Exhibiting: Oil burners, oil-fired water heaters, sump pumps and laundry tray pumps, water conditioning equipment.

New Products: Automatic laundry tray pump.

RADIO CORP. OF AMERICA, COMMUNICATIONS PRODUCTS DEPT., Camden 2, N. J.—Booths 434-436

In attendance: H. G. Boyle, R. C. DuBois, D. L. Pearlstone, R. C. Newcombe, J. P. McDermott, J. A. Munro.

Exhibiting: Two-way radio equipment for vehicles, radio dispatching equipment.

New Products: "Minicontrol" combination microphone, speaker, controls, "Personalfone" pocket size radio receiver; device to screen out interference on radios.

RAPIPORT ASSOCIATES, CHARLES N., 1057 Summit Ave., Jersey City 7, N. J.—Booths 310-312

In attendance: Charles Rapiport, Sidney Blackman.

Exhibiting: Ignition transformers, oil burner motors, fuel oil pumps.

New Products: Fuel oil pump with built-in delay action feature.

RAY OIL BURNER CO., ATLANTIC SEA-BOARD DIV., 629 Grove St., Jersey City 2, N. J.—Booth 917

RICHMOND PLUMBING FIXTURES DIV., RHEEM MFG. CO., P. O. Box 111, Metuchen, N. J.—Booth 703

In attendance: John J. Hall, R. H. Harris, G. B. Chandless, Jr., M. J. Holmes, Jr., L. S. Maehling, R. Shelton, A. E. Cohen, T. Gilen, D. Tobin, H. Zeamer, J. Shea.

Exhibiting: Oil-fired highboy and lowboy furnaces, oil-fired boilers.

S. O. S. PRODUCTS CO., INC., 346 Cumberland St., Brooklyn 38, N. Y.—Booth 732

In attendance: I. S. Pryor, G. G. French, Leo J. Goldstein, Joseph Gittler, Stanley Englert, Jerry Fields, Morris Chapman, Leon Donenberg.

Exhibiting: Chemical and refractory products.

SCULLY SIGNAL CO., 174 Green St., Melrose 76, Mass.—Booth 702

In attendance: Frank P. Scully, Sr., Frank P. Scully, Jr., William G. Rowell, Robert G. Scully, Joseph M. Bierwirth, John M. Sibarium, Harold J. Forrest.

Exhibiting: "Ventalarm" fuel oil tank gages and fill signals; "Unifil" portable combination fill, vent and signal system; tank fill connectors; electrode gages; vent caps; hose swivels and spouts; service kits.

SHELL OIL CO., 41-70 Main St., Flushing 55, N. Y.—Booths 333-335

In attendance: H. G. Hunt, A. A. Mickle, G. R. Stevens.

Exhibiting: Heating oil certified comfort program.

New Products: Shell combustion head.

SINCLAIR REFINING CO., 600 Fifth Ave., New York, N. Y.—Booths 628-630

In attendance: R. H. Nightingale.

Exhibiting: Heating oils.

SKUTTLE MFG. CO., 140 Summit, Milford, Mich.—Booths 428-430

In attendance: R. W. Geisler, K. M. Fournier, Lou Roberts, Walter B. Stamberger, V. E. Devine, William Debler.

Exhibiting: Automatic humidifiers, permanent air filters, electric radiant heaters and towel racks.

New Products: Model 711 counter-balanced humidifier, oil filled radiant heaters.

SLANT/FIN RADIATOR CORP., 87-49 130th St., Richmond Hill 18, N. Y.—Booths 401-403

In attendance: Alvin Buschel, Milton Brooks, Robert Ross, Morton Pizer, Herbert Steiner, Arthur Appelbaum, Jack Wright, Carlos Ramirez, Lucille Nolley, L. Meyers, Thomas

Urell, William McClellen, David Goggins, Meyer Bressen, Marvin Hendler, George Garbowit.

Exhibiting: Baseboard radiation, commercial lined tube radiation, electrical heating equipment.

New Products: Residential baseboard radiator, commercial heating units.

SMITH CO., INC., H. B., 57 Main St., Westfield, Mass.—Booth 28A

Exhibiting: Cast iron sectional oil-fired boilers.

SOCONY MOBIL OIL CO., INC., 150 E. 42nd St., New York 17, N. Y.—Booths 641-740

Exhibiting: "Mobilheat" fuel oil.

SPARTAN CONVECTOR CO., INC., 52-55 74th St., Maspeth 78, N. Y.—Booth 604

SPENCER HEATER LYCOMING DIV. MFG. CO., 652 Oliver St., Williamsport, Pa.—Booths 810-812

STEINEN MFG. CO., WILLIAM, 43 Bruen St., Newark 5, N. J.—Booths 318-320-322

In attendance: Robert W. Hundley, Chris Jensen, Jr., Jesse Tankel, Ace Heimsch, Milton Chinitz, Louis Cobin, M. Reiner, Herman Saffer, Charles Mac Beth, D. Wiggins, D. McCuckin, A. Small, M. Eldrich, Colman Kraemer, Mark Moore, Frank Harbin.

Exhibiting: Draft regulators, oil burner nozzles, ignition electrode assemblies, kits and cabinets, flame inspection mirrors.

New Products: Draft regulator, oil burner nozzle, sintered bronze nozzle strainer.

STEWART-WARNER CORP., Lebanon, Ind.—Booths 613-615-617

In attendance: Walter Leander, Carl Riddle, M. Smith, Robert Skarda, Ray Devaney, L. Grant, Walter Blake, William Judd, Norman Gill, G. Wolf.

Exhibiting: "Winkler" oil furnaces, oil boilers, low pressure burners, air conditioning equipment.

New Products: Furnaces with new casings and larger size blowers, 5 and 7½ hp air conditioning equipment.

SUNDSTRAND HYDRAULIC DIV., 2210 Harrison, Rockford, Ill.—Booths 508-510-512

In attendance: J. F. Griffey, J. F. Nelson, R. E. Stevens, B. L. Douglass, C. W. Lang, L. H. Schuette, B. L. Soderberg, S. A. Ferraro, J. R. Holmin, F. E. Carlson, R. W. Erikson, A. H. Swenson, B. F. Olson.

Exhibiting: Single and two stage high pressure fuel units, air-oil fuel units.

New Products: Booster pump-motor combination.

SUN OIL CO., 1608 Walnut St., Philadelphia 3, Pa.—Booths 433-435

In attendance: K. E. DeRosay, A. L. Anderson, K. W. Elvin, T. M. Hoey, V. L. Verdiani, J. L. Malony, D. C. Bennett, G. H. Plump, E. C. Dickel, A. E. Betts.

Exhibiting: "Sunheat" furnace oil with "Sungard".

SUN-RAY BURNER MFG. CORP., 139-24 Queens Blvd., Jamaica 35, N. Y.—Booths 502-504-506

In attendance: Gabe M. Marin, Alfred Luft, Alfred Metzger, Martin Sones, Jack Maxwell, Robert Adcock.

Exhibiting: Oil burners from .5 to 33 gph for No. 2 oil, oil burners for No. 5 and No. 4 oil from 3 to 25 gph, fuel oil transfer and supply pumps.

New Products: 10 gal shell head burner, 33 gal No. 2 oil burner. Fuel supply pump includes models with time delay and or constant level controls.

TACO HEATERS, INC., 1160 Cranston St., Cranston 9, R.I.—Booths 733-735

In attendance: J. Balter, R. H. Chaffee, E. J. Conley, R. V. Tesar, R. W. Leonard, W. H. Gupitill, C. Siney, J. Mitchell, E. Pollenz, H. Lisowski, H. E. Lucas, W. T. Robinson, J. P. Burns, W. J. Luger.

Exhibiting: Heat exchangers, pumps, heating specialties.

THE TEXAS CO., 205 E. 42nd St., New York, N. Y.—Booth 814.

TIME SAVING FILLS INC., 140 W. Market St., York, Pa.—Booths 437-438

In attendance: Charles G. Eyster, Roland Anstine, Carl Workinger, John S. Garceau, Lester Conley, Marshall Robbins.

Exhibiting: Fill equipment adaptors for fuel oil delivery.

New Products: "Speed-kleen" connector, coupling, stand pipe elbows and special fittings, combination hill pipe and gage.

TORIDHEET DIV., CLEVELAND STEEL PRODUCTS CORP., 16025 Brookpark Rd., Cleveland 11, O.—Booths 516-518-520-522

In attendance: K. Bratt, L. Clough, Duane Rouse, R. Lucas, W. Haynes.

Exhibiting: Gun-fired low-highboy furnaces, wall flame low-highboy furnaces, wall flame water heater, cast iron and steel boilers.

New Products: Gun and wall flame low-highboy furnaces, glass lined wall flame water heater.

THE TORRINGTON MFG. CO., 100 Franklin Dr., Torrington, Conn.—Booths 515-517

In attendance: Leonard C. Lindstrom, Dudley B. Robinson, Curtiss Hussey, Harold Sader, Stanley W. Stull, Robert Gibbs, Jack Vigneron, J. Crawford, Lucien Hennequin, Charles Hathaway, Ira Roy.

Exhibiting: Direct drive and belt driven "Vari-Basic" blower units, "Tab-Lock" airtoror blower wheels.

New Products: "Radiax-mixed" flow blower units.

TRU-SEAL DIV., FLICK-REEDY CORP., 2040 N. Hawthorne Ave., Melrose Park, Ill.—Booths 303-305

In attendance: Joseph Foltman, Joseph Miller, R. Anderson, P. McLaughlin, William Borman.

Exhibiting: Fittings for threaded connections, air and hydraulic cylinders.

V & E PRODUCTS INC., E. Liberty St., Schuylkill Haven, Pa.—Booth 724

In attendance: Joseph H. Eubanks.

Exhibiting: Steel boilers and steel boiler burner units.

New Products: Wall flame boiler, packaged unit.

VOLCANO BURNER CORP., 3612 E. Tremont Ave., New York, N.Y.—Booth 653

WALKER MFG. & SALES CORP., 1701-17 Penn St., St. Joseph 1, Mo.—Booths 412-414

In attendance: Andrew H. Ziph, Raymond Denning, E. J. Colley, E. S. Cushing.

Exhibiting: Draft controls for oil and gas fired combustion equipment, chimney caps, draft inducers for flue pipes.

New Products: "Shur-Flo" draft inducer, "Double Swing" regulator for gas fired equipment.

WATTS REGULATOR CO., Embankment Rd., Lawrence, Mass.—Booth 326

In attendance: George Wallace, Roy Schmidt, B. G. Robertson, J. F. Keegan.

Exhibiting: Boiler water level controls, pressure safety relief valves, automatic temperature and pressure relief valves, pressure reducing valves, bypass relief valves.

WEBSTER ELECTRIC CO., 1900 Clark St., Racine, Wis.—Booth 514

In attendance: D. J. Munroe, L. Ehrich, L. E. Woolf, T. Godburn, P. Deuble, O. Nielsen, B. T. Wiechers, W. Wenzell, H. Stacey, W. Dent.

Exhibiting: "ServiceSaver" fuel units, ignition transformers.

New Products: "ServiceSaver" fuel units, water-proof ignition transformers.

WEIL-MCLAIN CO., Michigan City, Ind.—Booths 422-424-426

WESTINGHOUSE ELECTRIC CORP., Pittsburgh 30, Pa.—Booths 635-637

In attendance: J. J. Farrell, F. T. Purdy.

Exhibiting: Oil burner and air conditioning fractional hp motors, phos-silver and phosphor brazing.

New Products: "Shorpy" oil burner motor.

WHITE-RODGERS CO., 1209 Cass Ave., St. Louis, Mo.—Booths 705-707-709-711

In attendance: R. A. Sherer, G. Powell, A. E. Petersen, E. E. Harwood, R. N. Weber, E. C. Robinson, E. Wechsler, F. Crawford, T. Langan, B. Cole, L. Tarricone.

Exhibiting: Automatic controls for refrigeration and air conditioning.

New Products: "PushButton" heating-cooling thermostat, air conditioning control panels.

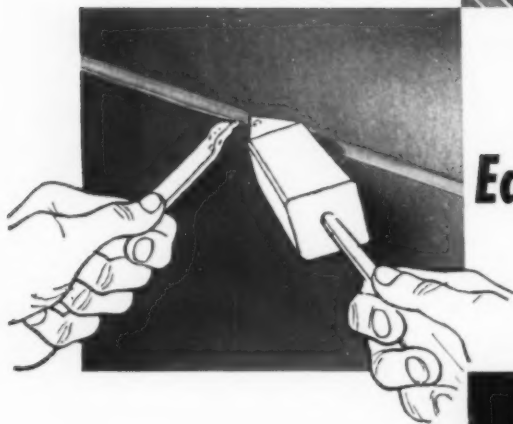
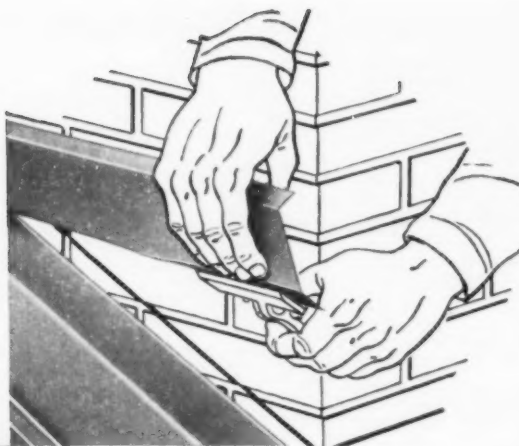
WILLIAMS OIL-O-MATIC HEATING CO., DIV. OF NATIONAL UNION ELECTRIC CORP., 851 W. Third Ave., Columbus 8, O.—Booths 616-618-715-717

In attendance: John M. Gleason, William W. Follett, Everett Darkins, Clarence M. Lane, Samuel F. Brown, James J. Curran, W. J. Olsen, Charles L. Brooks, Jack R. Swinehart, Dan J. Calori.

Exhibiting: Oil and gas furnaces, air conditioners.

For additional information about exhibitors, products and representatives, call at American Artisan's booth no. 507.

Easy to Work...



Easy to Solder...



FOLLANSBEE TERNE

... still your best bet for profit

The ductility of Follansbee Terne makes it *so easy* to bend and shape and, because it is already primed, Follansbee Terne will give you a perfect soldered joint every time.

In terms of dollars and sense, this *workability* of Follansbee Terne will cut installation time and cost for you.

Follansbee Terne will not peel or crack, will not stain, and will last a lifetime. You never have to worry about expansion and contraction when you use Terne.

And remember, Follansbee Terne will give you the best job at the best profit every time.

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Terne Roofing • Cold Rolled Strip • Polished Blue Sheets and Coils

Sales Offices in Principal Cities

the quality tells . . . the quality sells

new **JANITROL**

**year 'round
air conditioner**



COMPACT

Fits in as little as 3 $\frac{3}{4}$ square feet!
Features Dura-Tube Gas Heating Heart
and powerful air-cooled cooling.



the Wraps are off...
and from this day on the new

JANITROL
WIN-SUM-MATIC

Year-round air conditioner
**is the one to sell
and grow with!**

New Janitrol Win-Sum-Matic with front panels removed to show compact design and complete accessibility from front.



**feature-packed for a
mighty Sales Punch!**
**WIN-SUM-MATIC
by Janitrol**

New, Slim "Look of the Future"! New crisp, clean, uncluttered rectangular design with flush front enhances built-in effect . . . saves valuable floor space. New warm-tone neutral colors with gold accent complement decor of any room—harmonize with other appliances.

New, Compact Cabinet. Height of Win-Sum-Matic CVC120-85 (Combination L) is only 6'-8" including outlet plenum. Width 22½", Depth 40". Easily installed in basements with 7' ceilings. Plenum has knockouts on both sides and front for horizontal take-off.

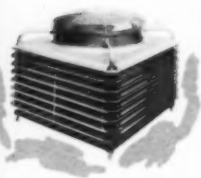
Complete Accessibility from Front. All internal parts are easily reached, simply by removing front panels. Snap-lock panel design. No screws.

Exclusive Season Selector Control. An internal air bypass damper, operated manually or by motor automatically with control by thermostat, provides correct air for heating or cooling without blower adjustments. Damper directs air over heat exchanger for heating, and directly from blower into outlet plenum and evaporator for cooling.

Exclusive PRIDE O' YARD

Compressor-Condenser Unit

Special louvered design allows air circulation from all sides while shading condenser from sun at all times . . . boosts efficiency and economy of operation. Rugged, weatherproof construction, with every necessary safeguard for protection of children and pets.

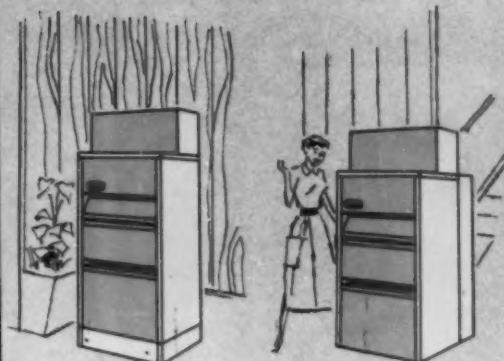


JANITROL HEATING AND AIR CONDITIONING DIVISION
Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Moffats Ltd., Toronto 15

Please show me how I can sell and grow with the new Janitrol WIN-SUM-MATIC year round conditioners and other quality-built Janitrol products for home comfort.

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**WIN-SUM-MATIC
Model CVC-85
with bottom
filter cabinet.**

**WIN-SUM-MATIC
Model CVC-85
with back
filter cabinet.**

Take the very finest in year 'round air conditioning equipment and make it *even better!* That's what Janitrol has done and this all-new Win-Sum-Matic is the proof.

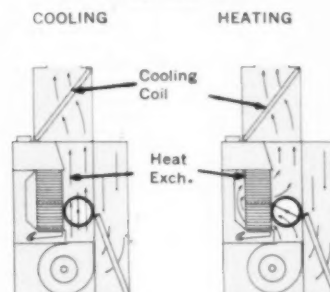
Here in one compact "package" is surpassing new beauty with wonderful new refinement and elegance of line and color . . . "the look of the future".

Here is new quietness of operation, with thrift that far exceeds accepted standards . . . a whole new concept of efficiency and dependability in performance.

Here is new ease and convenience in installation . . . new flexibility in the wide range of blower and motor combinations . . . new freedom of service and adjustment accessibility. Here, in fact, is everything you need and more to get your share of the booming air conditioning market.

Take a few minutes now to look over the features and advantages only Win-Sum-Matic offers. Then, ask your Janitrol representative—or mail coupon—for full details on how you, too, can sell and grow with Janitrol!

**AIR FLOW DIAGRAMS
WIN-SUM-MATIC with Back
Filter Cabinet**



SEASON SELECTOR (circled) allows straight-through air flow from blower to cooling coil for cooling . . . in winter, directs air through heat exchanger twice for maximum heat extraction.

**Exclusive Dura-Tube
Heating Heart**



Warranted 20 years! Born of the jet age! New A-19 armor coating, used to protect aircraft engine parts from corrosive, ravaging hot exhaust gases, is fused into all internal and external surfaces and joints—assures permanent sealing, new freedom from corrosion and burn-out. Twin-pass air flow design gives more

heating capacity in less space, air passes over heat exchanger surfaces *twice*, resulting in higher heat absorption, true heating economy.

New Waterless Cooling Heart. Compressor-condenser needs only air and electricity, operates at lowest cost. Eliminates water supply and sewage requirements. Reduces service problems. Provides cooling with outside temperatures to 125° F.

New Quietness in Operation. Acoustically treated blower chamber, cushion mounted blower and blower motor, full-floating heat exchanger and air-cooled side panels provide a new concept quiet, smooth performance without annoying vibration or expansion-contraction noises.

Wide Range of Blower and Motor Combinations. Special, new blowers with alternate motors for each size of unit to furnish air deliveries for different cooling capacities in each model—greater installation flexibility.

Sizes to Heat and Cool Any Home. Models with heating input 80,000 to 200,000 Btu. Cooling output 22,000 to 76,000 Btu. AGA approved for natural, mixed or LP gas. (Ask about special approvals for commercial applications.)

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JANITROL**

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From JANITROL—a complete line of gas and oil furnaces, unit heaters, conversion burners, air-cooled summer cooling conditioners, combination heating-cooling conditioners.

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it pays
to be choosy."**



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kind of job, or not. And with Dodge Reports you won't miss any good bets either.

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I want to know how to get more new construction business. Please let me see some typical Dodge Reports for my area. I am interested in the markets checked below:

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Name _____

Company _____

Address _____

City _____ Zone _____ State _____





3500 POUND ENDURO STAINLESS STEEL DOME graces Our Lady of Consolation Shrine in Carey, Ohio. The dome, comprised of 44 stainless steel segments, Type 304, was fabricated by Fred Christen & Sons, Toledo, Ohio. Delivered in two pieces, the dome was welded together on the job site. ENDURO Stainless Steel was chosen because of its high strength, resistance to rust and corrosion and because stainless retains its lustrous beauty with minimum maintenance.



DOMe FRAMEWORK partially covered with stainless steel segments.

Stainless Steel

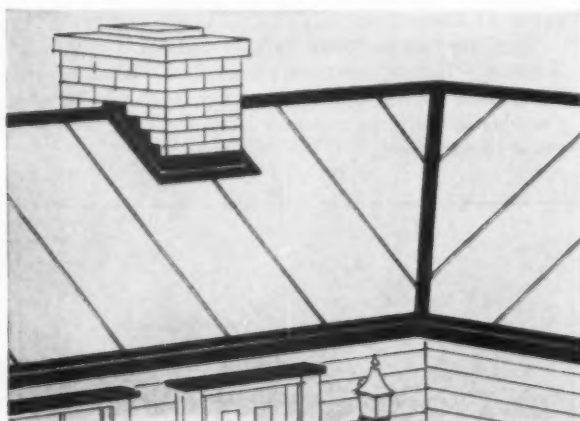
PROFIT OPPORTUNITIES

Stainless steel business has always been profitable business. Now, new applications bring new profit opportunities to progressive sheet metal fabricators. Architectural applications in schools, churches, institutions, clubs, industrial and commercial buildings, even private dwellings, are unlimited.

Stainless steel, being easy to fabricate, presents no special problems nor does it require an outlay for special equipment. The examples shown on these pages were fabricated using standard sheet metal equipment.



THE ANIMAL MEDALLION was sculptured from stainless steel by Eliza Miller for Leechburgh Elementary School, Leechburgh, Pennsylvania. Sculptured stainless steel presents no special problems, nor is an outlay required for special equipment. Just a little artistic talent and your own equipment.



REPUBLIC ROOFING TERNES PROVIDE PROFITABLE JOBS FOR YOU and permanent weather protection for your customers in a wide range of applications. Terne plate is strong, ductile, and extremely corrosion-resistant. It requires only occasional painting. Hot-dip coating of lead-tin alloy adheres tightly to the copper-steel base regardless of forming punishment. These factors, plus long life, make terne plate ideal for flashings, valleys, ridge rolls, and other uses, including complete roofs. Send coupon for details.



ROOF-DRAINAGE JOBS ARE PROFITABLE, TOO, when you install Republic ENDURO Stainless Steel gutters and downspouts. Both your builder and home owner prospects will listen when you talk rust- and corrosion-resistance, little or no maintenance, lower end cost. Installation is simple. Soldering is easy and requires no special tools. Mail the coupon for more information on the complete line of roof drainage products plus all accessories.

FOR SHEET METAL CONTRACTORS

Offer your customers the lasting beauty and maintenance-free advantage of sheet metal applications fabricated from Republic ENDURO® Stainless Steel.

Your ENDURO Stainless Steel Distributor—your Steel Service Center—will help you get started in this high profit stainless steel business. He will give you tips on fabricating—help you select the proper analysis for specific applications—provide fast, dependable service from complete stocks. Or write us for more information.



SIGNS OF THE TIMES. There's money to be made in permanently beautiful, easy-to-clean ENDURO Stainless Steel signs. They resist rust. They stay bright and attractive through all types of weather. Never need to be painted.



PROFIT OPPORTUNITIES are available on architectural jobs like this ENDURO church spire. Low maintenance costs, long life and enduring beauty help sell this type of application.

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- ☐ ENDURO Roof Drainage Products
- ☐ Roofing Terns

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Company _____

Address _____

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Air Conditioner Noise Is 'Necessary Evil'

This court refused to consider the noise produced by a window unit as a public nuisance on the ground that progress involves certain temporary annoyances

A WINDOW MODEL summer air conditioning unit installed in a city home was the subject of a legal dispute originated by the home owner's neighbors. They complained that the $\frac{3}{4}$ ton unit produced unusually loud, disturbing and unnecessary operating noise. They further claimed that these facts constitute a crime under the penal law of the state.

In its disposition of the charge, the court reasoned:

"The crux of any case involving the question whether a person has committed a nuisance, civil or criminal, in the maintenance or use of his own property, is the rather indefinite test of whether that person is making a reasonable use of his property.

Two Principles Involved

"The cases generally involve two general, but conflicting, principles of law: the right to use one's property as one sees fit and the duty to refrain from using one's property in such manner as to produce injury to others."

The court compared the case at hand with an earlier, somewhat similar case, in which an eastern home owner complained of the fumes and odors from a nearby brickyard. From the decision in that 75-year-old case, the court quoted:

"It is a general rule that every person may exercise exclusive dominion over his own property and subject it to such uses as will best subserve his private interests. Generally, no other person can say how he shall use or what he shall do with his property. But this general right

of property has its exceptions and qualifications. 'So use your own that you do not injure another' is an old maxim which has a broad application.

Life Involves Annoyances

"It does not mean that one must never use his own so as to do any injury to his neighbor or his property. Such a rule could not be enforced in civilized society. Persons living in organized communities must suffer some damage, annoyance and inconvenience from each other. For this they are compensated by all the advantages of civilized society. If one lives in the city, he must expect to suffer the dirt, smoke, odors, noise and confusion which are incident to that life."

Court Finds No Nuisance

Ruling in favor of the owner of the window air conditioning unit on the strength and reason of the earlier decision, the court added:

"It is the type of sound to which one may become so accustomed in the course of time as to be completely oblivious to its existence. Its continuous character makes it less annoying than other noises which have become part of the fabric of our urban lives . . . A person who resides in the center of a large city must not expect to be surrounded with the stillness that prevails in a rural district. No one is entitled to absolute quiet in the enjoyment of his property. He may only insist upon a degree of quietness consistent with the

standard prevailing in the locality in which he dwells.

"The air conditioning machine is a product of man's constant search for the improvement of his own comfort and enjoyment of life. That its use may cause some annoyance to others does not justify denouncing its use as criminal.

"It is an unfortunate truth that virtually all scientific invention has carried with it not only advantages but burdens. Unfortunately, progress is not marked by a straight line in a constant forward direction but rather by a zig-zag course, only the ultimate direction of which is clearly marked.

"A conviction in this case would not only ignore the way pointed out by firmly established principles in the law of nuisance, but would constitute a vain attempt to arrest scientific progress.

Sees Noise Factors Erased

"No doubt the manufacturers of our air conditioning units are aware of the desirability and necessity of producing their machines in such manner as to render them as noiseless as is consistently possible with their efficient operation. No doubt the course of time will result in progress in that direction.

"The present case involves the operation of a properly functioning air conditioning unit. Another question would be presented if due to defective construction or disrepair, the unit were to be excessively noisy. The court finds that the operation of this air conditioning unit did not create an 'unreasonably loud' noise and does not constitute a public nuisance."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



**Stainless Steel
welding information:**

*Keep it clean

You get strong, tight joints when you weld Stainless Steel, but you have to make sure the surfaces have been thoroughly cleaned. Any grease, oil or dirt on the welded surface might affect the corrosion resistance of Stainless.

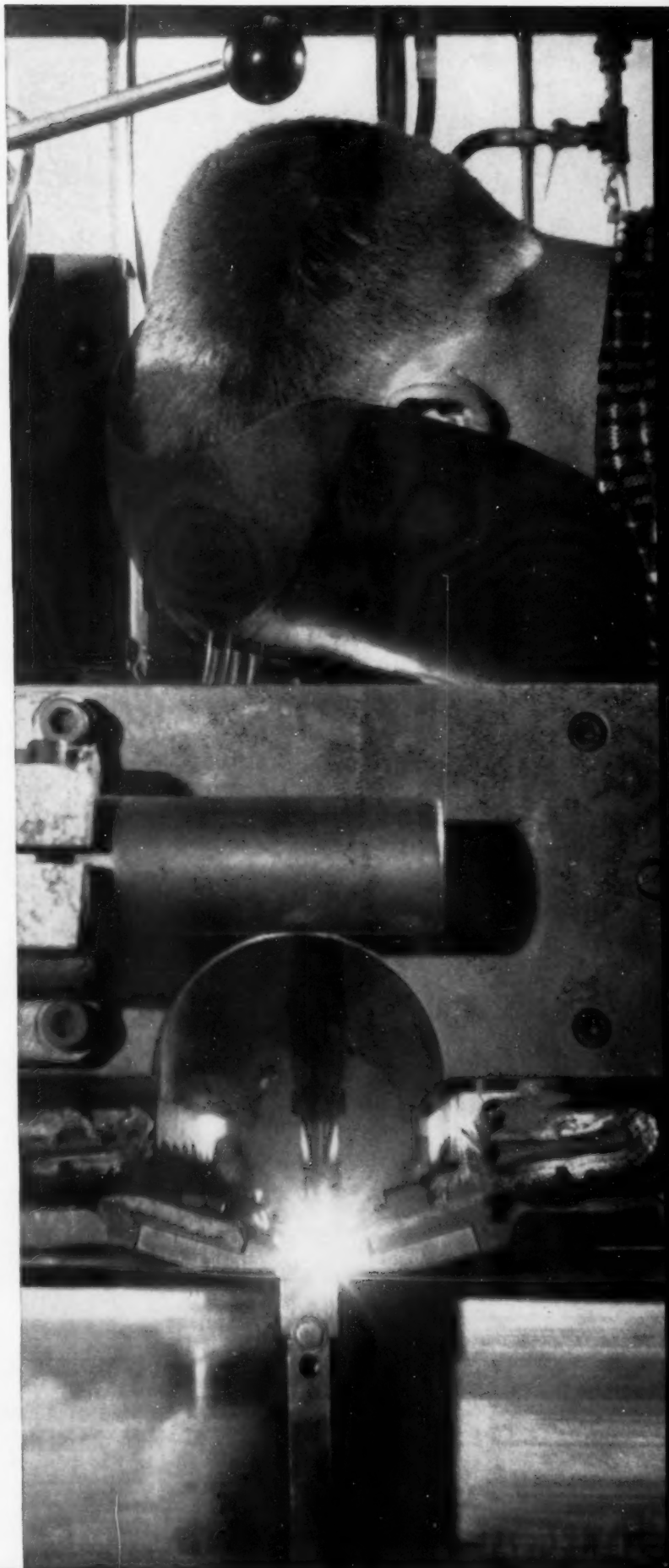
When you want to repair a crack, it's a good idea to chip out the cracked area completely so you're sure that only clean, solid metal is exposed. And remember, there are a lot of different kinds of Stainless Steel and they don't all react the same way. Be sure you handle each job right—check the "Stainless Steel Fabrication Book" before you start. If you don't have a copy of this 130-page guide, write on your company letterhead to United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

Remember: Stainless Steel isn't difficult to fabricate; it's just different.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
American Steel & Wire—Cleveland
National Tube—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Warehouse Distributors
United States Steel Export Company

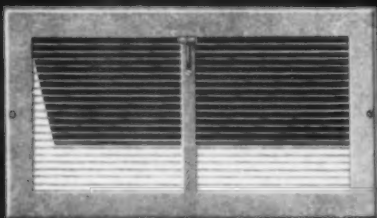
United States Steel



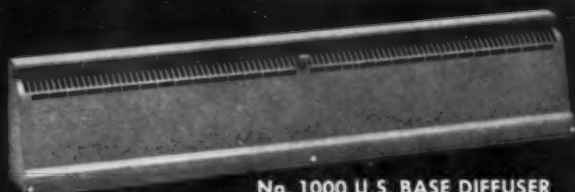


LET'S FACE IT

Only *Fine* Registers and Grilles make the
Best Air Conditioning System Possible

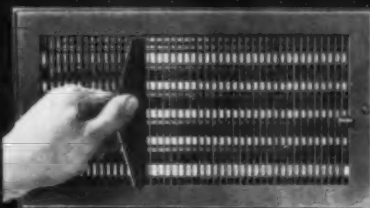


No. 153 U.S. A-C REGISTER
The Best for Less — yet "High-Grade."
The Best in Single-Valve Lines.



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Has Won the Lead in the Perimeter Low Cost Field.
Splendidly efficient — beautifully designed.

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Cooling Air Conditioning in all
Phases and Types. Probably
the most versatile of all Air
Conditioning Registers.

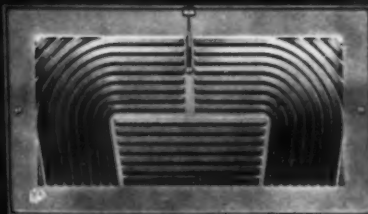


No. 256 U.S. A-C REGISTER

A NEW LEADER IN LOW COST CEILING DIFFUSERS



No. 1500 U.S. ROUND CEILING DIFFUSER
To be completely presented VERY SOON. Hold your
decision for the No. 1500 Round Ceiling Diffusers —
and then a little longer for the Best Buy in Square
Ceiling Diffusers — the No. 2500 to follow soon.



**No. 105 U.S. DIFFUSER
SIDEWALL REGISTER**
The Most Efficient and Powerful of all
Perimeter Sidewall Diffusers. For out-
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fuser for the same full 180° Diffusion.



UNITED STATES REGISTER COMPANY

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MATCHING PENCIL POINTS WITH COMPETITION WILL NEVER MAKE A PROFIT!



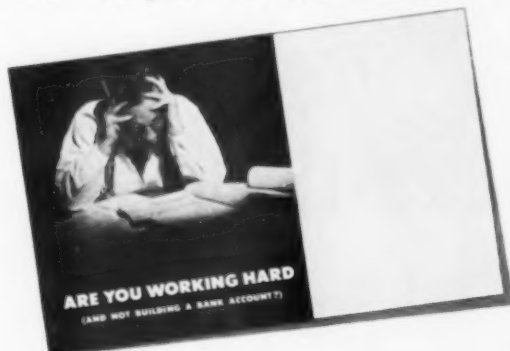
Any sale which hinges on price alone is not apt to put money in your bank account.

If you feel that the line of equipment you are carrying can be sold only by beating somebody else's price, then you should investigate the remedy offered by Stewart-Warner. This stable, successful organization is built on the premise that its dealers *must make money!*

As a Stewart-Warner dealer you can avoid the pitfalls which trap and destroy profits. You have a complete "One source" line of

heating and cooling equipment on an *Exclusive Franchise basis*. It's a line which can be demonstrated to be of superior quality in every respect. The sales and installation methods developed by Stewart-Warner steer you out of the price competition rut—enable you to make a legitimate profit on every sale.

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In this folder are the facts which show why the Stewart-Warner Franchise will enable you to recover vanishing profits. You owe it to yourself and your future prosperity to send for your copy today.

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Excellence

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HEATING AND AIR CONDITIONING DIVISION • Dept. A-58, Lebanon, Indiana

THESE ARE THE QUALITY PRODUCTS OF THE STEWART-WARNER CORPORATION

ALEMITE Industrial and Automotive Lubrication Equipment, Lubricants and Chemicals, such as CD-2, KLEEN-TREET and COOLING SYSTEM CONDITIONER • STEWART-WARNER Electronics Equipment and Systems, Commercial and Military • BASSICK Casters, Wheels and other Materials Handling Devices, Flo-Tilt Office Chair Controls • STEWART-WARNER Speedometers and other Automotive, Industrial and Marine Instruments • SOUTH WIND Aviation Heat Exchange Products and Instant Automotive Heaters and Minit Heater • STEWART-WARNER SAF-AIRE and WINKLER Heating and Air Conditioning Equipment • STEWART Die Castings • HOBBS Electric Hour Meters • BASSICK-SACK Furniture Hardware.

All of above trade names are the property of Stewart-Warner Corporation

WHAT THE ASSOCIATIONS ARE DOING



DUCT DESIGN was discussed by (l to r) J. W. Overend, Emory Cunningham, B. R. Queneau and W. A. Hinton



WINNERS OF ATLANTA APPRENTICESHIP contest B. F. Glover (center) and John McEntyre (right) displayed their skills at the exposition booth under the guidance of instructor Roy Norton (left)

SE Trade Area Learns

Essentials of Duct Systems

"THERE'S MUCH MORE INVOLVED in the installation of air distribution systems than the connecting of tubes to carry air," said Emory Cunningham, moderator of the Southeast Trade Exposition's technical session on air conditioning, in opening the second heating, sheet metal and air conditioning program sponsored by the Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. Attendance at the second Southeast Trade Exposition, held Mar. 28-30 in Atlanta, was 55 percent over that of the 1957 exposition, reaching a total of 1335.

The technical session on air conditioning was moderated by Emory Cunningham, president, Roofing, Sheet Metal, Heating and Air Conditioning Contractors' Association of Alabama. Speakers were J. W. Overend, Sound Control Div., Koppers Co., B. R. Queneau, Tennessee Coal & Iron Div., U. S. Steel Corp., and W. A. Hinton, Georgia School of Technology. This panel pointed out many of the essential features that should be included in every duct system.

What Causes Noise in Duct Systems?

Noise problems in duct systems were discussed by W. J. Overend, who named as the major sources of mechanical noises the blower, dampers, grilles, registers and dif-

fusers, air velocity, poor anchoring methods and abrupt turns in the duct system where poor connections are made between the sections of metal. In his summary of the problem, Mr. Overend recommended as effective ways of reducing noises in duct systems any one or any combination of these three methods: 1) use of flexible duct connections between sections containing mechanical equipment and those primarily used for distribution of air; 2) lining the duct with insulation containing sound absorbent characteristics; and 3) use of noise traps with baffles of sound absorbing material.

The type of metal most suited for use in ductwork was outlined by B. R. Queneau, who said that any metal used for ducts should have a protective surface that is soft enough to stand the extreme bends created by machines in forming various types of locks and seams. This is important, he said, not only to prevent deterioration of the metal but to help in developing ducts that have low leakage factors at all joints both on the side and at the ends. Also, a metal of this type tends to produce a duct system in which the static resistance is relatively low and one that has a minimum of noise traceable to air flow.

Basic principles of duct design were covered by W. A. Hinton, who gave several examples of the change in static pressure and velocity pressure that occur when

(Continued on page 90)



"This sheet has just the right stiffness and ductility"

He's talking about a sheet of Bethcon galvanized steel, and his enthusiasm is shared by an ever-growing number of sheet-metal workers.

Bethcon has that very desirable combination of stiffness and ductility because of Bethlehem's up-to-the-minute continuous galvanizing lines, which include a continuous annealing process. This treatment turns out sheets which are easy to work into a strong, rigid sheet-metal product.

Bethlehem's continuous galvanizing process bonds the zinc to the steel so tightly that it virtually eliminates peeling or cracking of the coating. Even when you double the sheet back on itself, the zinc stays put. The coating is uniform,

too, both in appearance and in thickness. Since a Bethcon sheet has no drip end, it has no bothersome bead.

You can order Bethcon in 13-gage and lighter, in either plain open-hearth or copper-bearing steel. A Bethlehem representative will gladly call to discuss your sheet-metal operations with you, and to give additional information about Bethcon. Just call or write to the Bethlehem sales office nearest you, or write to the address below.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation.

BETHLEHEM STEEL



Each and every
CRESTOLOY PLIER is
individually tested!



CRESTOLOY END CUTTING NIPPERS
 No. 72, 6". Also in 7" size.

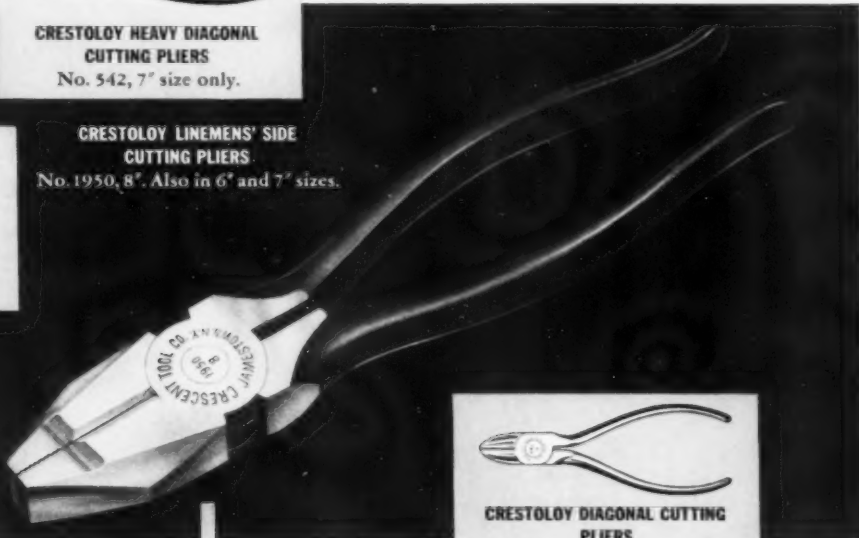


CRESTOLOY HEAVY DIAGONAL CUTTING PLIERS
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CRESTOLOY LONG NOSE SIDE CUTTING PLIERS
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 No. 942, 6". Also in 4" and 5" sizes.

When you choose a CRESTOLOY PLIER you know you are getting top value and proven performance. After rigorous factory testing for ease of cutting, hardness of blades and strength, each tool that passes these tests is tagged with the certifying tag reproduced above. CRESTOLOY PLIERS are available in more than a score of patterns including the five popular types illustrated.



CRESCENT and CRESTOLOY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.

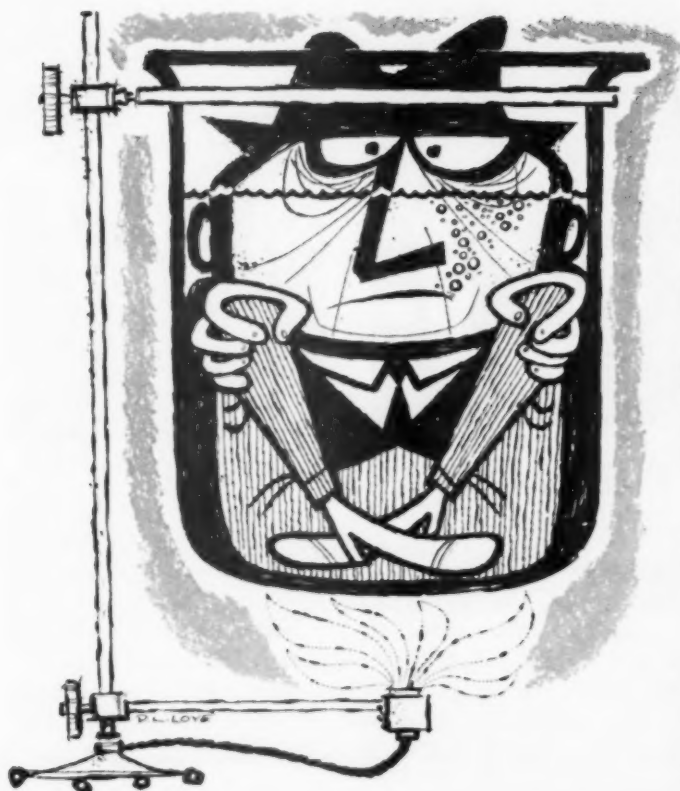
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Give Wings to Work

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Efficient, long-lasting Round Oak comfort equipment is built with know-how gained from more than 50 years of experience. Every new or improved Round Oak design is proved by actual "in-the-home" installations.

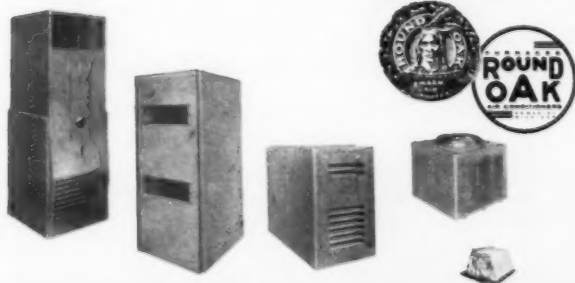
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Home buyers have learned that Round Oak is a name they can depend on for low operating costs and minimum service requirements. From years of experience, Builders and Financing Agencies know that Round Oak users always get full value from their investment.

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Your installed cost is always low with factory-assembled Round Oak equipment. And with Round Oak quality and easy-to-service design, your cost of first-year service liability is "peanuts." Obviously you end up with greater *net profit*.

If you're fed up with experiments, try a **SURE** thing . . .



ROUND OAK

Round Oak Co., Inc., Dowagiac, Michigan

Gentlemen: No, I don't want to suffer with experiments. So please send me full information on Round Oak complete line of performance-proved heating and air conditioning equipment.

NAME

FIRM NAME

STREET

CITY STATE

WITH THE ASSOCIATIONS

(Continued from page 86)



PRE-EXPOSITION REGISTRATION, which was 55 percent larger than 1957, is checked by Carolyn Whitlock, B. L. Noblitt and Aaron K. Newman



EXPOSITION co-chairmen J. D. Knox (left) and John Lance review program



FLORIDA ASSOCIATION sent (l to r) A. C. Ferguson, R. C. Tucker and Victor Kinsey to report on its insurance plan

ducts are made smaller or enlarged with the same volume of air being delivered. He also pointed out that additional time spent in designing a duct system to prevent fittings and sections from creating undesirable ratios between static and velocity pressures would prove fruitful to dealer-contractors because less time would be needed on the job to adjust dampers and balance the air flow after the system has been installed.

Benefits Provided by a State Association

Members of the Roofing and Sheet Metal Contractors' Association of Florida served as a panel that presented reasons why a state association is needed. This panel was moderated by R. C. Tucker, president of the Florida association, and two directors, A. C. Ferguson and Victor Kinsey. Mr. Kinsey said that in today's business world, the small businessman must make himself known through every means available and that the best way to do this is through an association that represents his industry in the area in which he pays the bulk of his taxes. He said that an association provides a means whereby dealer-contractors can work together to solve problems such as the writing and enforcing of codes, development of new field and shop equipment, and development of techniques in fabricating and erecting products manufactured for this industry. An association also facilitates the exchange of ideas that improve the industry's business practices, he pointed out, and serves to coordinate official representation of industry problems as they relate to sales taxes and insurance.

The importance of insurance for dealer-contractors was brought out by A. C. Ferguson who outlined the self-insured plan of insurance as used in the Florida association. This insurance plan has been in effect for four years and has provided adequate insurance at reasonable cost to members of the association. Mr. Ferguson pointed out the benefits of a safety campaign that has helped to reduce accidents both in the shop and on the job. The safety

campaign has been responsible for lower premium rates paid by Florida association members.

The Southeast Trade Exposition included an exhibition hall in which 132 wholesalers and manufacturers serving the area displayed their products. The technical sessions were arranged for morning periods with afternoons and evenings being left open for examining the equipment on display.

Air Distribution Discussed at Kalamazoo

SPEAKER AT THE APRIL MEETING of the Kalamazoo Sheet Metal, Roofing, Heating & Air Conditioning Contractors' Association was Russ Luchtman, Gerwin Industries, Inc. Following his talk, Mr. Luchtman presented a film on "Thermo-Base" air distribution.

Columbus Discusses Costs, Profits

THE HEATING, Air Conditioning and Sheet Metal Association of Columbus has devoted several meetings to discussions of costs, profits, competitive policies and stronger local dealer-contractors. Questionnaires and case histories have been used by the members in developing material for their presentations.

Featured speaker at the group's April meeting was E. L. Lewis, Carrier Corp., who discussed air conditioning service problems.

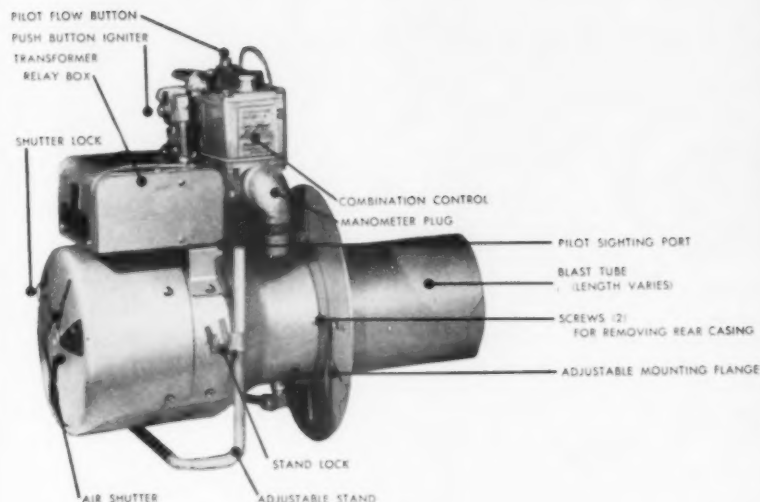
So. Calif. Plans Estimating School

THE SHEET METAL CONTRACTORS Association of Southern California recently met with the dean of Vocational Education at Los Angeles City College to make plans for an Estimating School. The course will be designed to aid sheet metal contractors in estimating procedures, and classes will be open to everyone, whether members of the association or not.

(More association news on page 94)

TURBO-HEAT — BY Barber

A NEW ADVANCE IN POWER GAS BURNERS



TURBO-HEAT FEATURES

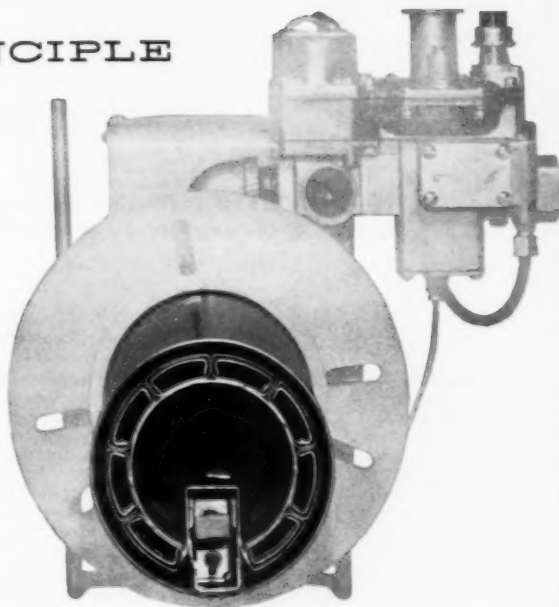
1. Wide Range of BTU Inputs from 70 to 210,000 BTUH with any length blast tube from 6" to 15".
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3. Light Weight shipping weight 24 lbs.—lightest made.
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THE TURBO-HEAT PRINCIPLE

THE SHORTEST FLAME . . . most heating men agree that combustion must be completed in as small an area as possible and low in the combustion chamber for maximum efficiency (greatest heat transfer). Based on this principle, our engineers have produced a burner with the shortest, most compact flame per BTU input of any burner on the market today. Here's how:

8 VENTURI TUBES . . . the eight venturi tubes in TURBO-HEAT give the **lowest** port loading (each venturi producing 9,000 BTU at Min. rate and only 26,000 BTU at Max.). Even atmospherically, this low port loading would allow a much shorter flame than a single venturi burner. We use this advantage of low port loading by assembling the eight venturis inside the rim of the blast tube thereby achieving short flame length and high BTU input at the same time. (See photo at right.)

Now by adding to this venturi system forced air in exact proportions, we can control the flame for consistent efficiency over a wide range of inputs. While this assembly and design is radical in nature, it has proven itself practicable in extensive field and laboratory tests.



Front view, showing the 8 venturies in burner head

THE

Barber

FOR SPECIFICATION SHEET AND PRICE LIST, WRITE TO ADDRESS BELOW

MANUFACTURING COMPANY

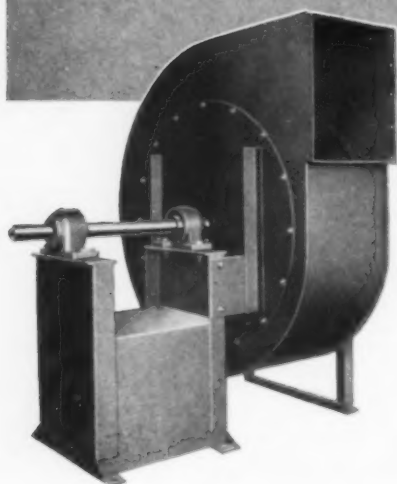
1052 East 134th Street, Cleveland 10, Ohio

GA
LISTED

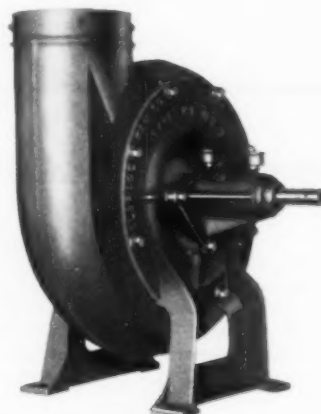
FAST ACTION

DELIVERY

Clarage Industrial Air and Material Handling Fans



TYPE XL FANS. Distinguished by advanced design, high efficiency. Universal discharge, 3 different interchangeable wheel types available, reversible for either clockwise or counter-clockwise rotation with rim or open type wheels. Rugged, tight, fabricated steel construction. Pressures to 18" SP. **IMMEDIATE SHIPMENT** on all standard Arrangement 1 and 9 fans. Arrangement 4 and 8 fans also promptly available.



TYPE CI FANS. Proved performers in a wide range of services. Cast iron construction. Universal discharge, 2 different interchangeable wheel types available, reversible for either clockwise or counter-clockwise rotation. 6 sizes, pressures to 24" SP. **IMMEDIATE SHIPMENT** on all standard Arrangement 1 and 2 fans. Arrangement 4 and 8 fans also promptly available.

CALL TODAY the nearest Clarage sales engineering office:

ALBANY, N. Y.
ALBUQUERQUE, N. M.
ATLANTA, GA.
BALTIMORE, MD.
BILLINGS, MONT.
BIRMINGHAM, ALA.
BOSTON, MASS.
BUFFALO, N. Y.
CHARLOTTE, N. C.
CHICAGO, ILL.

CINCINNATI, OHIO
CLEVELAND, OHIO
CORPUS CHRISTI, TEXAS
DALLAS, TEXAS
DAVENPORT, IOWA
DENVER, COLO.
DES MOINES, IOWA
DETROIT, MICHIGAN
FLINT, MICH.
HARTFORD, CONN.

HOUSTON, TEXAS
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LOS ANGELES, CALIF.
MEMPHIS, TENN.
MIAMI, FLA.
MILWAUKEE, WIS.

MINNEAPOLIS, MINN.
NASHVILLE, TENN.
NEWARK, N. J.
NEW ORLEANS, LA.
NEW YORK, N. Y.
OKLAHOMA CITY, OKLA.
OMAHA, NEB.
ORLANDO, FLA.
PHILADELPHIA, PA.

PITTSBURGH, PA.
PORTLAND, ORE.
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ST. LOUIS, MO.
SALT LAKE CITY, UTAH
SAN ANTONIO, TEXAS
SAN FRANCISCO, CALIF.
SEATTLE, WASH.

SHREVEPORT, LA.
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SYRACUSE, N. Y.
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CLARAGE FAN COMPANY Kalamazoo, Mich.

CLARAGE

**...dependable equipment for
making air your servant**

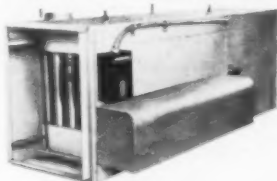
SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal



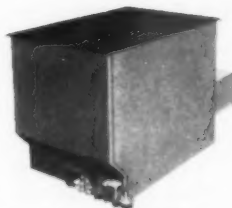
...DELIVERS MORE FOR THE MONEY"
SAYS TEXAS HOME BUILDER



Compact UP-FLOW AND COUNTER-FLOW COZY FORCED-AIR MODELS give zero clearance; let you use 4" piping or conventional ductwork. Has exclusive Heat Wringer Heat Exchanger. Adaptable for air conditioning. 75,000, 105,000, 140,000-BTU input capacities.

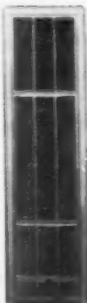


COZY HORIZONTAL FORCED-AIR MODELS available in five capacities: 60,000 BTU to 140,000 BTU input. This space- and money-saver can be installed in attic, utility room, under floor... even without basement.



The **COZY CHALLENGER**, the best buy in floor furnaces, has four capacities: 35,000, 50,000, 65,000, and 75,000 BTU.

COZY WALL HEATERS, available in four capacities, single- or dual-wall installations; three different temperature controls are available. AGA approved under 1957 central heating standards.



"TOPS IN QUALITY...LOW IN PRICE"

Bill Beck, prominent builder of Midland and Odessa, Texas, picks COZY as the furnace line...tops in quality, yet low in price... that delivers complete satisfaction to the customer, and virtually no service calls for the installer.

Like many successful builders, Mr. Beck knows that his profit margin depends not only on low cost in building, but also on freedom from the expense of adjustments and service calls.

If you're missing out on sales and profit, get the facts on the high-quality, gas-fired COZY line. The COZY high-profit, year-around sales plan can provide the answer to your sales problem. Write today!



THE ADVANCE FURNACE CO.
WICHITA KANSAS

COZY

Canadian Delegates Advised to Put Accent on Quality

THE NATIONAL WARM AIR HEATING and Air Conditioning Association of Canada held its 15th annual convention at the Seaway Hotel, Toronto, March 5. The panel of speakers included Professor S. Konzo, Mechanical Engineering Dept., University of Illinois; Frank W. Thomson, sales manager, Lennox Industries (Canada) Ltd.; Frank J. Nunlist, Jr., group vice president, Air Conditioning & Refrigeration Div. and Mueller Climatrol Div., Worthington Corp.; Ernest Houslander, chairman of the sheet metal division of the Ontario Educational Association; Norman Deboys, executive secretary, Home Improvement Council and Jack H. McQuaig, president, the McQuaig Institute of Executive Training.

E. Harvey McKinney was elected president and Frank W. Thomson vice president. The 1958 board of directors consists of M. M. Miller, Robert M. Barr, George Crothers, Don Bulloch, G. Ferland, Gordon C. Ward and Harry T. Williams.



M. M. MILLER, past president, receives certificate in recognition of his services

Professor Konzo, discussing Trends and Developments in the Warm Air Heating Industry, noted that ratings for furnaces were originally largely dimensional — that capacity was determined by measuring the sq ft of heating surface and multiplying by a number. The establishment of furnace rating codes and rating laboratories, he said, marked a significant point in the history of warm air heating as did the recognition of the importance of the installer's engineering ability. Professor Konzo discussed present day methods of measuring heating performance, pointing out that "when you measure what has been done you will know which way to go and what to do to make the next job better."

Frank J. Nunlist, Jr. presented the Terre Haute Story, explaining how an Indiana dealer-contractor built his sales and his business through proper advertising. Mr. Nunlist said that at no time during the campaign was

there any implication that low prices were available. Instead, throughout the entire program, the benefits of comfort and safety to the home owner were stressed as were the skill and experience of the company's installers.

Frank W. Thomson discussed the 1958 Certified Bonded Heating Program, explaining the need for such a program, what it will do and is doing for the industry, and how dealer-contractors can use it in promoting more and better sales.



DELEGATES ENJOY ENTERTAINMENT provided at the anniversary party

Ontario's newly developed warm air heating vocational program was described by Ernest Houslander, who warned that the lack of trained and qualified warm air heating technicians is one of the industry's weaknesses today. Mr. Houslander outlined what has been done by Ontario's vocational schools to overcome this problem.

Norman Deboys told the delegates what has been done by Home Improvement Council to encourage home owners to remodel and improve their homes and explained how dealer-contractors can make use of HIC promotional material at the local level.

Reports on Ohio Apprentices Program

DEVELOPMENTS in the Ohio apprenticeship program were discussed by H. S. Fravel, Jr. at a recent meeting of the Council of Sheet Metal Contractors of Stark County, Inc. (Ohio). Mr. Fravel reported that the state apprenticeship committee has appointed Ross Boggs and L. Kenney to work on changes and additions to national apprenticeship standards to be incorporated into the state program. William C. Webb, Bureau of Apprenticeship Training, will act as consultant. Mr. Fravel also reported that the committee has voted to change the age limit from 17 to 21 years inclusive to 16 to 23 years inclusive to conform to union contract agreements. It was also decided to assess each participating apprentice committee \$25 per year to take care of incidental expenses.

(More association news on page 98)



HOW STAINLESS STEEL INVENTORY PROBLEMS CAN BECOME PROFIT OPPORTUNITIES

The difference between profit and loss in many manufacturing operations is often times the difference between raw material supplies and production scheduling. Too little stock results in expensive downtime. Too much inventory means excessive costs in holding and handling—the cost of possession—which can reduce your profit margin.

Ordering Republic ENDURO Stainless Steel from your stainless steel distributor releases

inventory capital for other business needs.

Further, your stainless steel distributor can provide you with expert advice in solving machining and metallurgical problems. Findings of Republic specialists in these fields are available to you through him. Call your nearest Republic Stainless Steel Distributor—your Steel Service Center—listed below, next time you need stainless steel. He's only as far away as your telephone.



REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

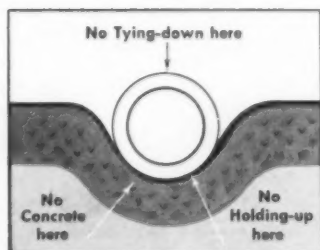
CALL YOUR REPUBLIC ENDURO® STAINLESS STEEL DISTRIBUTOR

ALABAMA Reynolds Aluminum Supply Company, Birmingham, J. M. Tull Metal & Supply Co., Inc., Birmingham.	GEORGIA (Cont.) Reynolds Aluminum Supply Company, Atlanta 1, Savannah, J. M. Tull Metal & Supply Co., Inc., Atlanta 2.	MISSOURI Hammond Sheet Metal Company, St. Louis 5, Hubbell Metals, Inc., Kansas City 16, St. Louis 3, Marsh Steel Corporation, North Kansas City 16.	NORTH CAROLINA Metal Service Corporation, Charlotte, Reynolds Aluminum Supply Company, Raleigh, Vance Iron and Steel Company, Charlotte.	RHODE ISLAND Edgcomb Steel of New England, Inc., Pawtucket.
ARIZONA Ducumetal Metals & Supply Co., Phoenix.	IDAHO Pacific Metal Company, Boise.	NEW HAMPSHIRE Edgcomb Steel of New England, Inc., Nashua.	OHIO The Ohio Metal & Manufacturing Co., Dayton 2, Voss Brothers, Inc., Morris Plains, Columbus 8, Williams and Company, Inc., Cleveland 14, Cincinnati 29, Columbus 8, Toledo 12.	TENNESSEE Hubbell Metals, Inc., Memphis, Metals, Inc., Bristol, Sikes Steel and Supply Company, Incorporated, Chattanooga, Reynolds Aluminum Supply Company, Memphis, Nashville, Vance Iron and Steel Company, Chattanooga.
ARKANSAS Hammond Sheet Metal Company, Fort Smith, Little Rock.	ILLINOIS Chicago Steel Service Company, Chicago 32.	NEW JERSEY Atlas Steel Supply Company, Morris Plains, Benedict-Miller, Inc., Lindhurst, International Corporation, Millside, Miller Steel Company, Inc., Milwaukee.	OKLAHOMA E. M. Jorgensen Company, Tulsa.	TEXAS E. M. Jorgensen Company, Dallas, Houston.
CALIFORNIA Ducumetal Metals & Supply Co., Berkeley 10, Los Angeles 54, National City, E. M. Jorgensen Company, Los Angeles 54, Oakland 23.	INDIANA Hubbell Metals, Inc., Indianapolis 2, Ohio Valley Hardware & Roofing Company, Evansville.	NEW YORK Atlas Supply Company, Inc., Bronx 58, Beals, McCarthy and Rogers, Inc., Buffalo 5, Brace-Mueller-Huntley, Inc., Buffalo, Rochester, Syracuse, Brace and Cook, Inc., New York 38, Eastern Metals Warehouse, Inc., Albany, Emel Iron Works, Buffalo, Follanbee Metals Corp. of New York, Brooklyn 32, Rochester, Hamley, Inc., Brooklyn 32, K. & S. Metal Supply, Inc., Long Island City, Metal Purchasing Company, Inc., New York 1.	OREGON American Steel Warehouse Company, Portland 14, Pacific Metal Company, Portland 9.	UTAH Structural Steel and Forge Company, Salt Lake City, ZCM Wholesale Distributors, Salt Lake City.
COLORADO Marsh Steel Corporation, Denver 16.	KANSAS Marsh Steel Corporation, Wichita.	KENTUCKY Reynolds Aluminum Supply Company, Louisville, Williams and Company, Inc., Louisville 3.	PENNSYLVANIA Hill-Chase and Company, Inc., Philadelphia 34, Potts-Farrington Company, Philadelphia 29, Horace T. Pott Company, Philadelphia 34, The Warren Company, Erie, Williams and Company, Inc., Pittsburgh 33.	VIRGINIA Dominion Culvert and Metal Corporation, Roanoke 5, Metals, Inc., Bristol, Reynolds Aluminum Supply Company, Richmond.
CONNECTICUT Edgcomb Steel of New England, Incorporated, Wallingford.	LOUISIANA Marsh Steel Corporation, Baton Rouge.	MARYLAND Hill-Chase Steel Company of Maryland, Baltimore 3.	WASHINGTON Pacific Metal Company, Seattle.	CANADA Drummond McCall and Company, Ltd., Toronto, Ontario Montreal, Quebec
FLORIDA Caulley Steel and Supply Company, Fort Lauderdale, Miami, Orlando, Eagle Roofing and Art Metal Works, Inc., Tampa, Reynolds Aluminum Supply Company, Miami, J. M. Tull Metal and Supply Co., Inc., Jacksonville, Miami, Tampa.	MASSACHUSETTS Howbridge Brothers Company, Boston 10.	MICHIGAN Huron Steel Company, Detroit 16.		
GEORGIA Atlantic Steel Company, Atlanta 1.				



Transite Air Duct keeps installed costs low!

Strong! Corrosion-resistant! Transite lets you eliminate costly concrete encasement



Transite® offers you many advantages—many ways to save when you install modern slab-in-grade perimeter heating and air-conditioning systems.

Of all its money-saving advantages, many contractors say its strength and corrosion resistance are most important, because they make costly concrete encasement unnecessary. Both time and concrete are saved as your men position Transite directly on the prepared bottom. There's no need for special supports—and because Transite won't float—no need for anchoring.

All your men do is position duct and pour concrete.

Transite installs still faster because fittings can be made quickly, easily, right on the job—or ordered factory-made to your requirements.

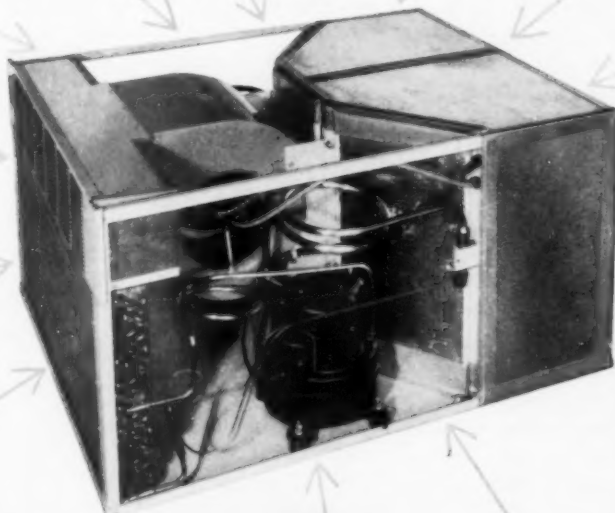
To homeowners, Transite Air Duct offers permanent, trouble-free service. Made of asbestos-cement, it is fully corrosion-resistant inside and out. It won't flake or flap down to impede air flow . . . will never rot or give off odor.

Let us send you a free copy of Transite Air Duct booklet, TR-144A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ont.



Johns-Manville TRANSITE AIR DUCT

HERE'S THE LINE DESIGNED FOR YOU!
Easy to Install! Easy to Service! Easy to Sell!



Manning-Bowman **CENTRAL** **AIR CONDITIONING** **SYSTEMS**

MANNING-BOWMAN CENTRAL AIR CONDITIONING SYSTEMS

give you and your customers outstanding performance, trouble-free operation and more beneficial features than most other competitively priced systems! **THIS IS YOUR CHANCE TO UP YOUR SALES VOLUME HIGHER THAN EVER BEFORE!**

MANNING-BOWMAN SLIDE-OUT CHASSIS

Slide it in to install; slide it out to service!

MANNING-BOWMAN WEATHER-PROTECTED CONTROLS

Sealed against the elements, controls can't rust or short out, and on self-contained units, complete factory-wired controls make installation even *easier*. Just bring in power and low-voltage supplies.

MANNING-BOWMAN 'PERMALIFE' FINISH GIVES HIGH-PROTECTION

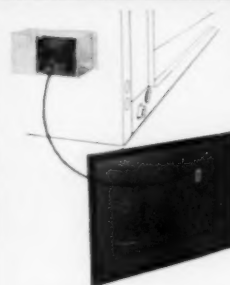
Cabinets are weather-protected with high-baked enamel. This UL tested finish withstands 2600-hour salt-spray tests. Exterior panels are *easily* removed for installation and service!

**SELL AND PROFIT THE EASY WAY
... THE MANNING-BOWMAN WAY!**



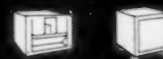
Manning-Bowman
MANNING-BOWMAN DIVISION

McGraw-Edison Co. Albion, Mich.



MANNING-BOWMAN EXCLUSIVE Lectorfilter® SELLS ITSELF!

This unique development has impact as an important health feature! Exclusive Lectorfilter generator is standard equipment on all self-contained central systems. The electrostatically-charged filter collects and holds tiny grains of dust and pollen—a boon to allergy sufferers.



MANNING-BOWMAN 4 h.p. SELF-CONTAINED SLIDE-OUT CHASSIS

Self-Contained models 2, 3 and 4 h.p.

Remote models—3, 4 and 5 ton.

Manning-Bowman Division
Dept. MB 85-AA, Albion, Michigan

NAME _____
ADDRESS _____
FIRM NAME _____
CITY _____ ZONE _____ STATE _____

Pennsylvania Convention Emphasizes Education

THE SHEET METAL, Air Conditioning & Roofing Contractors' Association of Pennsylvania placed the accent on education at its annual convention held in Reading April 11 and 12. The sheet metal session, moderated by Joseph Stark, was built around the problem of estimating a heating system for a small house. Problems encountered in summer air conditioning were discussed by John Henke, J. C. Stark and Carl Ammon, who served as members of the cooling panel. Walter E. Keist was moderator. Carl Ammon, as moderator of the roofing session, led a discussion on how to estimate a roof job.

Other speakers included the Honorable William McDevitt, mayor of Reading; W. S. Acuff, Reynolds Metals Co.; and William Sholl.

Officers elected are: president, R. J. Cronan, West Reading; first vice president, Bernard Lawrence, Greenville; second vice president, S. S. Hahn, Easton; third vice president, J. S. Stark, Beaver Falls; secretary and treasurer, E. W. Liebermann, Ambridge; sergeant-at-arms, Herbert Hays.

Directors elected to serve for the year 1958 are Gilbert E. Keir, Pittsburgh; A. J. Sabathne, Altoona; V. D. Hunter, New Brighton; and Paul Gehrig, Reading. Directors whose terms expire in 1959 are Chas. Luppold, Reading; R. E. Winger, Grove City; Frank Cordes, Rochester; and R. R. Meckley, Williamsport. Serving for three years are Jack Simmons, Bryn Mawr; Jack L. Trost, Erie; Carl Ammon, West Reading; and John Henke, Erie.

The Salesmen's Auxiliary elected Thomas McCombs president. First, second and third vice presidents are David Alspach, E. K. Thompson and Howard Wilhelm. Steve Goodnough was elected secretary and H. S. Criswell treasurer.

The association has recently prepared and is mailing to all prospective members a folder listing its main objectives. These are:

1. To obtain relief from the excessive compensation and insurance rates being charged against our craft, through specific rate classifications.
2. To aid in bringing about more friendly relations between sheet metal, warm air heating, air conditioning and roofing dealer-contractors and others engaged in the building trades.
3. To favor and help set up heating codes and licensing of heating dealer-contractors.
4. To foster the distribution of the products used by our industry through legitimate channels.
5. To endorse legislation that would provide an effective curb on bid shopping and bid peddling on Federal Public Works contracts.
6. To advise our members of the various items which must be included to determine the cost of doing business.

7. To promote the welfare of our members through better salesmanship.

8. To represent the interest of our members in matters of legislation which directly affect our industry.

9. To elevate the standard of workmanship in our craft, thereby creating greater confidence on the part of the public.

10. To do any and all things which come within the scope of the association's constitution which will aid any member in the solution of his particular problem.

Alabama Appoints District Reporters

THE ROOFING, SHEET METAL, Heating and Air Conditioning Contractors' Association of Alabama has appointed district reporters who will report on activities throughout the state. W. S. Buchanan will cover Dothan; W. O. Adamson, Opelika; Oscar R. Durden, Montgomery; Shirley Palmer, Tuscaloosa; Ferris S. Ritchey, Jr., Birmingham; Red Smith, Anniston; J. F. Ratliff, Huntsville; and W. G. Stanfield, Tri-Cities.

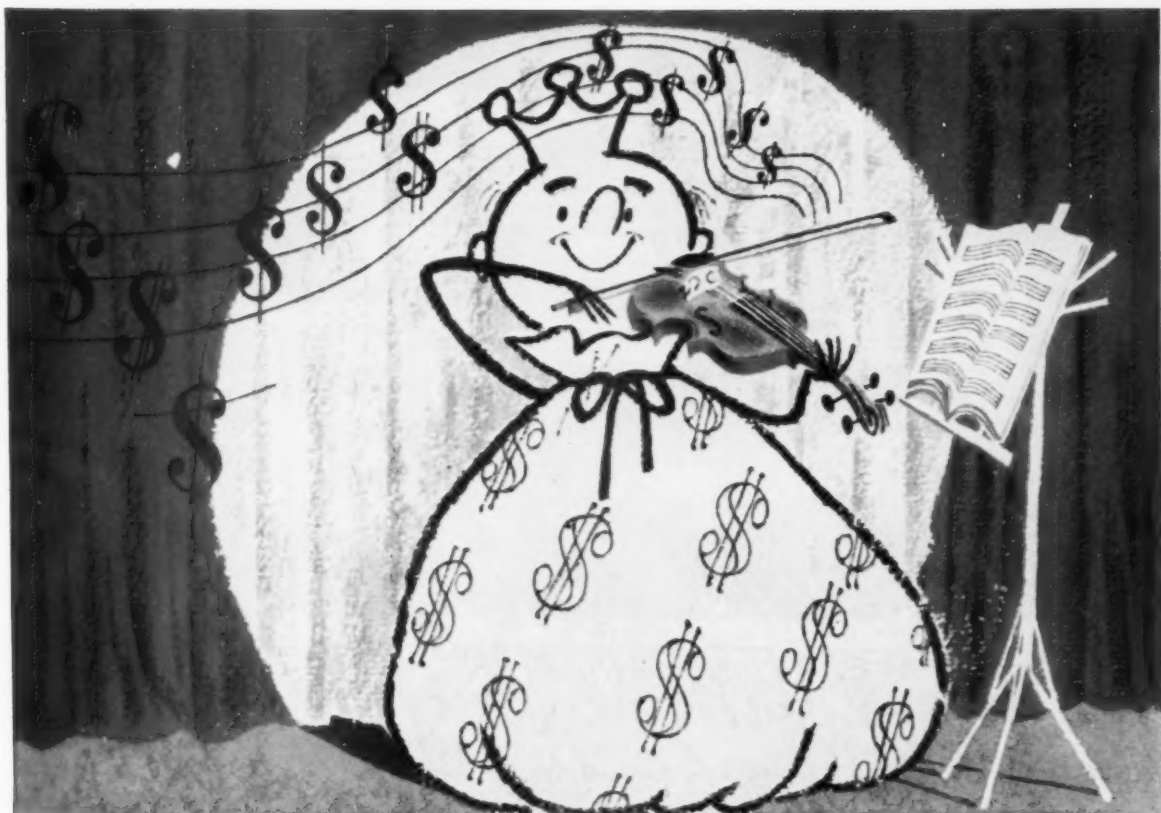
IHACI Members Get NWAHACA Services

DEALER-CONTRACTOR MEMBERSHIP in the Institute of Heating and Air Conditioning Industries of Southern California now includes membership in the National Warm Air Heating and Air Conditioning Association, according to Robert Johnson. Advantages of membership in the national association, Mr. Johnson notes, include the following:

1. Each member receives a copy of the NWAHACA Warm Air Heating Library containing a complete series of volumes covering design, estimating and installation procedures for year 'round air conditioning applications. The standards set up by these volumes are nationally recognized by the building industry, FHA and local inspection agencies as acceptable.
2. Members receive monthly bulletins containing valuable information on installation practices and industry developments.
3. Each member receives a membership certificate, identification card and window decals of the association insignia, all of which identify him as a reputable dealer-contractor.
4. Valuable sales assistance is also provided members in the form of consumer pamphlets and booklets designed to help merchandise quality heating and summer air conditioning systems.

Other advantages cited include NWAHACA's consumer education program and its extensive research activities.

(More association news on page 102)



★ *sales music is sweeter*

**with the
famous
engineering of**

C H R Y S L E R

Airtemp

The name "Chrysler" is synonymous with engineering know-how. This technical skill and knowledge is soundly built into Airtemp heating and cooling. Customers realize this fact—full well! And, briefly put, this is one of the sound underlying reasons why Airtemp dealers make more money.

There are other reasons, too, why Airtemp dealers make more money—

- The Airtemp line is complete—really complete—with 297 heating and cooling models. They can satisfy *any* heating or cooling need!
- Airtemp dealers *keep* their initial sale profits because they have fewer customer complaints and service calls.
- *Pre-tested* merchandising helps and incentive programs.
- Special training for dealers and their personnel at Chrysler Corporation Service Centers.
- Factory advertising in your local markets.

Want to make sweet sales music? Then tie up with Airtemp—the profit franchise! Just mail the coupon below.

AIRTEMP DIVISION, CHRYSLER CORP.
DEPT. AA-5, DAYTON 1, OHIO

Please send me full information on an Airtemp franchise.

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

Just out! The newest in pickups!



NEW FLEETSIDE BY CHEVROLET

Here's the new sweetheart of the Task-Force fleet, Chevrolet's new Fleetside pickup! No truck has ever been better to look at . . . or better for your business.

Long, sweeping lines, graceful body contours . . . new truck appearance that's fleet, dashing and completely modern! Yet there's even more to the new Chevrolet Fleetside than the striking beauty that first meets your eye. There's *size*, for instance: extra room inside to pack many additional cubic feet of payload. And with double-walled lower side panels, durable hardwood floor, and solidly constructed full-width tailgate, the new Fleetside is the toughest of pickup bodies, too! A new adjustable latch keeps graintight tailgate free from rattles.

Here's a new high in hard-working utility, matched by new styling that makes you stand out on any street. See the new Fleetside at your Chevrolet dealer's now! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



More load space than any other comparable low-priced pickup. In lengths of either 78 inches or 98 inches and a full six feet in width, this new body actually provides 50% more cubic capacity than the conventional pickup box!*

**Optional at extra cost.*

Plenty of work-whipping hustle and muscle. Your choice of two great engines—standard 145-h.p. Thriftmaster 6 or optional at extra cost 160-h.p. Trademaster V8. And truck-engineered chassis components will take all the abuse your most bruising hauls can give them!



CHEVROLET TASK • FORCE TRUCKS



Electro-Klean®

ELECTRONIC HOME AIR FILTER



A compact "package" unit, Electro-Klean installs easily in the return air duct of any central forced air furnace or air-conditioning system. Requires no water or sewer connections... adds little to comfort-conditioning cost for the homeowner.

Tired of swapping dollars on equipment that has been price-cut to the bone? Then listen to this! Electro-Klean Electronic Home Air Filter retails for as little as \$189, gives you a **FULL PROFIT**... you don't have to cut prices to make the sale!

Better yet, here's how you can **DOUBLE** your profit. Suppose your customer comes in to buy a central air-conditioning system. It's easy to *build up the sale* with a low-cost Electro-Klean unit—and that goes for your forced-air furnace prospects, too! Pace-setting, newsmaking Electro-Klean assures you this double profit as you wrap up those **EXTRA** sales. Write today for details on the AAF power-packed promotion beamed to Electro-Klean prospects everywhere.



American Air Filter

Company, Inc. • 355 Central Avenue, Louisville 8, Ky.

WORLD'S LARGEST MANUFACTURER OF AIR FILTERS AND DUST CONTROL EQUIPMENT

WITH THE ASSOCIATIONS

(Continued from page 98)

Research Group Meets in Greensboro

THE OBJECTIVES of the Heating and Air Conditioning Research and Development Association were outlined by Dr. E. A. Fails and D. S. Shepherd Jr. at a recent meeting of the group held in Greensboro, N. C. Dr. Fails, executive secretary and director of research, explained that the association is conducting a research program on



MEMBERS of the Heating and Air Conditioning Research and Development Association hear speakers discuss objectives and achievements of the association

all subjects relating to business management and control. A continuous reporting service is maintained, he said, to keep members acquainted with developments along these lines. It was explained that primary membership is available to heating and air conditioning dealer-contractors and associate membership to wholesalers and distributors. Host to the group was the Loman Supply and Equipment Co. of Greensboro.

Detroit Prepares Consumer Folder

THE DETROIT Warm Air Heating Association has prepared a folder for consumer distribution explaining what the home owner or prospective home owner should look for in purchasing a heating system. It describes the comfort that can be provided by a warm air heating system that is properly designed and installed and urges home owners to "be sure your warm air heating work is done by a qualified dealer-contractor." On the front of the folder is the association symbol which emphasizes the words "quality" and "service." Ten thousand of the folders were distributed by the association during a recent builders' show.

A discussion of service rates at a recent meeting brought to light that charges for service range from \$5 to \$12 per hr. Harold Bowie moderated a panel on "Your Hourly Service Rate — Does It Cover Your Overhead?"

Dayton Discusses Licensing Ordinances

THE DAYTON HEATING, Air Conditioning, Sheet Metal and Roofing Contractors Association reports that the Kettering Plumbing Board has made a rough draft of a proposed new licensing ordinance which will combine warm air and wet heating with plumbing under one licensing

board. At a meeting held to review the draft, objections were voiced by representatives of plumbing groups as well as by the Dayton heating association. Subsequent meetings will be held to discuss the proposed draft further. The Dayton group also reports that through the efforts of John Moellering a meeting was recently arranged with a group of union electrical contractors to discuss the proposed Dayton electrical licensing ordinance. Representatives of both the electrical contractors' group and of the Dayton heating association were in agreement on having a licensing ordinance backed by a performance bond, but without a qualifying examination.

Secretary Suggests New Action Program

SPEAKERS at a recent meeting of the Grand Rapids Heating & Air Conditioning Association were F. E. Ederle, the group's executive secretary, and Charles Flynn, president of the Michigan Sheet Metal and Heating Contractors' Association. Mr. Ederle presented "A New Action Program for Your Association," based on a two year study of the association's operation. Mr. Flynn's subject was "The Value of a Membership in the State Association."

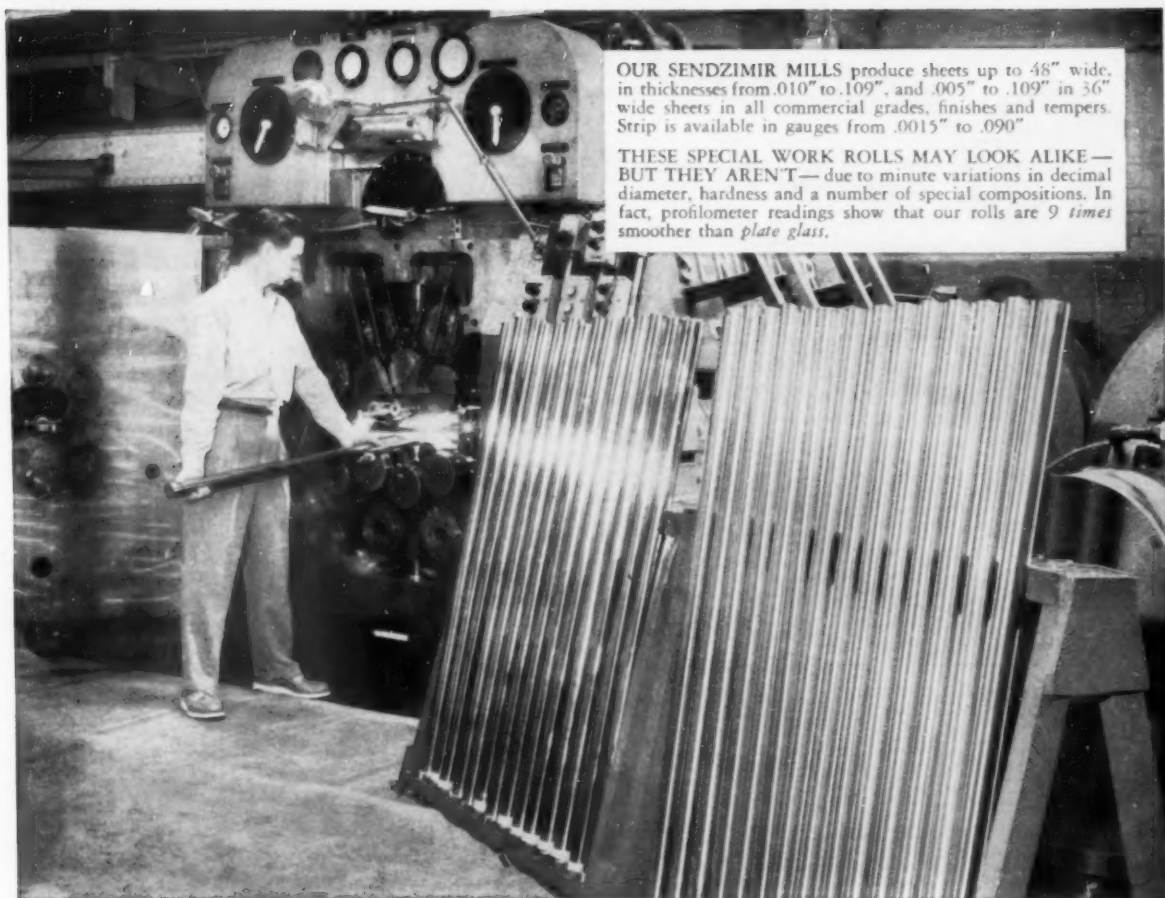
The board of directors recently completed plans for a publicity program which consists of 13 display ads to be run in the building section of a Grand Rapids newspaper. Each ad contains a list of participating members as well as copy informing home owners about the comfort they can expect from a quality warm air heating system. The ads also point out that the dealer-contractors listed at the bottom of the ad are qualified men who are capable of installing properly engineered systems to assure maximum heating comfort. The advertising plan is patterned after the successful program developed by the Milwaukee Sheet Metal Contractors Association, which is now in its third year.

Northern California Elects Officers

EMERY LILLARD, Walnut Creek, Calif. was recently elected president of the Warm Air Heating Institute of Northern California. Thomas A. DeVol, Stockton, was elected vice president and Dar Knowles, Burlingame, was re-elected executive manager of the institute. According to Mr. Lillard, the association is now in process of preparing an aggressive advertising and publicity campaign designed to make all home owners aware of what true "indoor comfort" can mean. An advertising committee has been appointed by Mr. Lillard consisting of Roland Taylor, Fraser & Johnston; Thomas DeVol, Thomas DeVol Co.; and Emery Lillard. Dar Knowles will direct all promotional activities.

The institute recently presented James F. Deane, vice president and general manager of the Tuck Aire Furnace Co., with a "Special Comfort" award in recognition of his services to the group.

(More association news on page 106)



OUR SENDZIMIR MILLS produce sheets up to 48" wide, in thicknesses from .010" to .109", and .005" to .109" in 36" wide sheets in all commercial grades, finishes and tempers. Strip is available in gauges from .0015" to .090"

THESE SPECIAL WORK ROLLS MAY LOOK ALIKE — BUT THEY AREN'T — due to minute variations in decimal diameter, hardness and a number of special compositions. In fact, profilometer readings show that our rolls are 9 times smoother than plate glass.

It takes more than just a precision mill to produce STAINLESS STEEL of MicroRoll® quality

... it takes Operating Know-How. Only Washington Steel, first to use Sendzimir sheet rolling, can offer you 10 years of practical experience with these mills.

Every hot-rolled stainless steel band has variations in thickness and surface characteristics which must be compensated for in the cold-reduction process to obtain precise gauge and flawless surfaces. To do this, special work rolls with minute diameter differences along the length of the roll

are used in controlling such variations as crown, edge and camber. To accurately control all the possible variations requires a large number of these rolls, plus *highly skilled operators* who know from experience which rolls, speeds and reductions are required. These are but a few of important factors in quality rolling which can only be learned by *long* experience and association with precision mills.

Washington Steel is the only producer whose entire production stainless steel sheet and strip is rolled exclusively on the Sendzimir Mill.

WASHINGTON STEEL CORPORATION

5-A Woodland Avenue

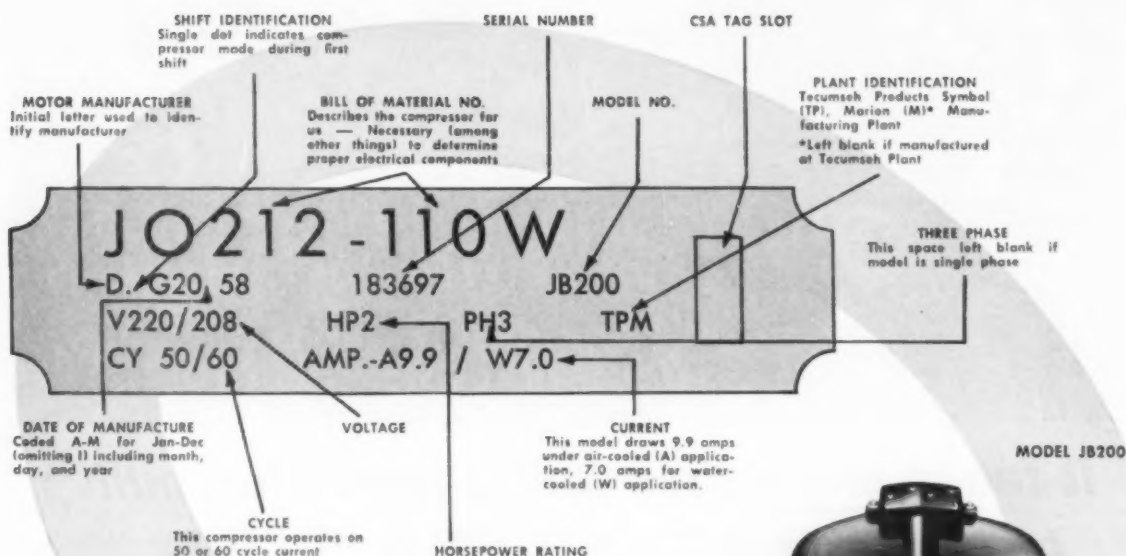
Washington, Pennsylvania





Herman Hermetic Hints

ON Proper Compressor Identification



Tecumseh compressor serial plates are as valuable as fingerprints in identifying your particular model. These embossed plates, which you will find spot-welded to the shell of every Tecumseh and Marion compressor, carry all information pertinent to the compressor. This most recent serial plate revision (effective with 1958 production) emphasizes legibility and also makes provision by way of the slot at the right, for attachment of the CSA (Canadian Standards Association) tag where required. Know your serial plate: With this information your Tecumseh wholesaler can supply you with exact replacement parts or the proper replacement compressor.



The Leader Serving Leaders in the Air Conditioning and Refrigeration Industries

TECUMSEH PRODUCTS COMPANY

MARION, OHIO

TECUMSEH, MICHIGAN

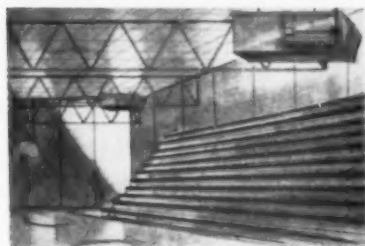
EXPORT DEPT: P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Compact!

Unit Heater or Central System



Norman®
Southerner®
HORIZONTAL GAS FURNACES



- Saves floor space . . . can be located high out of the way.
- Saves installation time and costs . . . can be installed as a duct system.
- Versatile . . . outstanding performance when used as unit heater in commercial installations where extra velocity and quietness are required.
- A.G.A. approved for use as either central heating system or as a blower-type unit heater with any type of gas. Also approved for attic installations.

PATENTED **NORMAN** SEALED COMBUSTION



Radial-Flo application in Cadillac Super Market, Oxford, Michigan
Constructed and Operated by H. D. Grove

Norman Three-Sixty®
Gas-Fired **UNIT HEATERS**
answers more jobs better

Operating completely independent of room air, Norman Three-Sixty Unit Heaters can be installed in many applications where other unit heaters may fail.

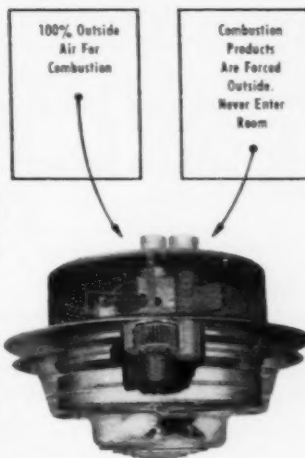
They are especially suitable for super markets, bakeries, restaurants, meat shops, candy stores and other locations where combustion products entering the room threaten contamination.

Norman Three-Sixty Unit Heaters are particularly adaptable to drug stores, variety stores, dry cleaners or wherever exhaust fans create a negative pressure that may cause pilot outage.

Two Types, Two Sizes

Radial-Flo units gently distribute a complete circle of warm air downward and outward. Down-Blo units provide direct, spot heating from high ceilings—excellent for blanketing vestibules, lobbies and doorways of garages, repair shops, warehouses and other entries exposed frequently to the outside weather.

Both Radial-Flo and Down-Blow models available in 85,000 or 115,000 BTU/hr. inputs.



**WRITE US TODAY
FOR COMPLETE INFORMATION**

IN CANADA: A. D. PALMER PRODUCTS LTD., Lethbridge, Alberta — A. D. PALMER & CO., Port Credit, Ontario



NORMAN PRODUCTS CO.

1164 Chesapeake Ave., Columbus 12, Ohio

We want to learn more about Norman Three-Sixty Unit Heaters.

NAME _____

COMPANY NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

See Sweet's Arch. File 30C/No. American Sch. and Univ. Annual C-1/No

WITH THE ASSOCIATIONS

(Continued from page 102)

Past Presidents Honored at Luncheon

EACH YEAR the past presidents of the Warm Air Heating and Air Conditioning Association of Charlotte, N. C. hold a luncheon session to review the achievements of the association during the past 12 months and to discuss plans for programs that the association can undertake during the coming 12 months. Some of the activities planned for



ANNUAL LUNCHEON for past presidents of Charlotte, N. C. association honored (l to r) Seth Hinson, Tom Kirkwood, Jim Kuykendall (now serving second term), Jim Daughtry and Ralph Finlayson

1958 include additional effort to get a modern heating code passed by the city council, start training sessions to improve installation techniques, conduct seminars on good management practices and review costs involved in determining overhead percentages. The recommendations are passed along to the association's board of directors for action.

NHAW Suggests Collection Stimulant

ONE WAY OF STEPPING UP COLLECTIONS, the National Heating and Airconditioning Wholesalers reports, is to charge 1 percent per month on delinquent accounts. One wholesaler put this system into effect by notifying his customers that "all invoices remaining unpaid on the 10th of the second month following purchase will be considered past due and will thereafter be subject to a service charge of 1 percent per month or part thereof, until paid."

Ohio Surveys Membership

THE OHIO SHEET METAL CONTRACTORS' Association is surveying its membership in an effort to gain information about the sheet metal industry in Ohio. Each member is asked to fill in a form showing percentages for various operations and mail it in anonymously to Don Dieterle, executive secretary of the association. Questions asked deal with such expenses as advertising, salaries, office supplies, truck expense, shop and office rent, insurance, etc. The association will analyze the figures and report results for businesses with sales volumes of less than \$100,000; \$100,000 to \$300,000; and over \$300,000.

Rochester Studies Phone Book Ads

TELEPHONE BOOK ADVERTISING was one of the major subjects of discussion at the last several meetings of the Master Sheet Metal, Furnace and Roofers Association (Rochester, N. Y.). President Pike appointed a committee under the leadership of Burt Stevens and Charles Schmitt to study the various classifications members are listed under and make recommendations to eliminate costly duplication. It was also suggested that the association list the secretary's telephone number under the association name so that it will be available to anyone wanting to call the association.

New England Discusses Certified Heating

THE BI-MONTHLY MEETING of the Sheet Metal and Air Conditioning Contractors Association of New England was held at the civilian terminal of the Bedford, Mass. airport. Forty members and associates were present to hear Jack Demling outline the Certified Heating program of the Sheet Metal and Air Conditioning Contractors' National Association.

The New England association invites membership. Dealer-contractors, distributors and manufacturers in the New England area are urged to write the association president, Norman C. MacDonald, 244 Florence Rd., Waltham, Mass. for information.

N.Y. State Holds Apprentice Contest

RESULTS of the recent apprenticeship contest conducted by the New York State Sheet Metal Workers Joint Apprenticeship Committee have been announced by Joseph R. Stiglmeier, committee chairman. Winners are: first year, Norbert Stack, Buffalo; second year, Jack Norton, Syracuse; third year, Angelo Messa, Syracuse; and fourth year, John R. Cantie, Buffalo.

Analyzes Customer Profitability

THE WEDEMEYER ELECTRONIC WHOLESALE SUPPLY CO. of Ann Arbor, Mich., recently published a report of a study made to determine the profitability of route salesman customers by sales volume. George Wedemeyer, president of the company, explaining how the firm determined the method of investigation, said:

"It is obvious if a salesman travels too far on a given day, his sales efficiency will be low simply because he consumes too much time traveling and not enough selling. It is also obvious that if a salesman makes too many calls in any one day he cannot do justice to any one of them and will therefore never realize the full potential of any of them, or of the territory as a whole.

"Somewhere between too many and too few calls lies the ideal, but where? And how can it be determined?

(Continued on page 110)

HOW REVERE COPPER



makes buildings alluring



as well as enduring

Copper is far from passé in modern building construction. In fact, it's being used more and more and in more different forms than ever before. The main reasons are: 1-You can do so many things with copper. 2-It is so easy to work and fabricate. 3-It has unusual flexibility in design. 4-Its endurance has been proved over the centuries.

In this instance the architect, WILLIAM B. HARVARD of St. Petersburg, Florida, having used copper on the balconies and front fascia, decided that copper would be the perfect sheath for the large wall surfaces, and by using vertical pans of copper a most unusual and decorative effect

was obtained. The copper was then treated to produce a soft green weathered look to contrast with the white marble. Result: a striking, enduring edifice for the ST. PETERSBURG FEDERAL SAVINGS & LOAN ASSOCIATION, St. Petersburg, Florida.

The 5,000 lbs. of 16 oz. Revere Cold Rolled Copper used, were applied by DANIELS & JONES SHEET METAL WORKS, St. Petersburg. Copper was furnished by the Revere Distributor, HORNE WILSON, INC., Tampa.

For buildings that allure as well as endure, plan on making more use of Revere Copper.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.

1 Central heating and cooling for new custom-built homes

2 Volume-priced central heating for mass housing projects

3 Replacement of heating or cooling equipment in older homes

4 Complete system modernization in homes of all types and ages

5 Add-on cooling equipment in homes of all types and ages

Majestic

5 big markets to sell! 5 big ways to profit!



Let's say you're a heating and cooling supplier who specializes in one phase of the building market. Or perhaps you're a general dealer who follows all possible leads to profitable installations. Whichever business policy you follow, you can do it better with Majestic!

Majestic — maker of a tried-and-proven line of heating and cooling equipment — maintains a single purchasing source for all units, plus the necessary ducts, fittings and other supplies.

Majestic gives you prompt delivery and offers you trade discounts, allowances and selling inducements.

The Majestic Company promotes its

half century-old name to the building trade and the home-buying public. For example, 89 million motoring consumers see Majestic's roadside signs each month. This is just one portion of an aggressive, hard-hitting sales promotion program.

As a Majestic dealer, you receive personalized selling help from district sales managers and regular up-to-date product information through regular mailings, sales meetings and service clinics.

Whether you serve one market or many — whether you deal in oil, gas, electric or all three fuels — Majestic will help you to greater profits as it has its many other dealers.

Write now for complete illustrated brochures on the 1958 Majestic line!

The **Majestic** Co., Inc.

394 Erie Street, Huntington, Indiana

**Makers of finest quality
home-comfort equipment
SINCE 1907**



You mean that
GREAT WESTERN GALVANIZED SHEETS
will not flake, peel, crack
or chip no matter how
we form them?

**We mean
 just that!**

If you want galvanized sheets that form *easily* into *any* shape . . . no matter how tough . . . without *flaking, chipping, cracking or peeling* . . . depend on GREAT WESTERN.

Galvanized by the most modern continuous process these quality sheets have the tightest zinc coating ever.

The sparkling bright finish reflects the permanence and inner quality that mean good looking jobs, lasting satisfaction and enduring protection against corrosion.

As for delivery — *and we mean fast delivery* — call GREAT WESTERN STEEL today. We carry large stocks of sheets and coils in a wide range of gauges, widths and lengths for immediate shipment.



**GREAT WESTERN
 STEEL COMPANY**

ESTABLISHED 1918

Extra Values

make the difference in
 Galvanized Sheet Steel Service
 from GREAT WESTERN STEEL.

Call Great Western: HEmlock 4-5800

General Office and Plant:

2300 W. 58th St., Chicago 36, HE 4-5800

Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092

REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES

WITH THE ASSOCIATIONS

(Continued from page 106)

"If the profitability of these trade accounts could be determined by the sales volume of each, management would be close to the answer."

Outlined are: Method of Cost Analysis and Procedure, Specific Procedures, Findings and Analysis, Conclusions and Recommendations of Survey.

Copies of the report may be obtained from the National Heating and Airconditioning Wholesalers, Inc., 1200 W. 5th Ave., Columbus, O.

Teaches Importance of Checking Plans

TWENTY-FOUR INDOOR COMFORT conferences were held this year by the National Warm Air Heating and Air Conditioning Association of Canada. Subjects covered included heat loss calculations, principles of duct design, designing a heating system, principles of air distribution for year 'round air conditioning, heat gain calculations, equipment selection, and designing a year 'round air conditioning system.

Each dealer-contractor, on completing the course, was given a set of heating system plans containing certain errors in engineering. He was asked to locate the errors and send in the corrected plan to association headquarters. There, officials of the association checked his work and indicated any additional necessary corrections. The layout was then returned so that the dealer-contractor



THIS YEAR'S SERIES of Indoor Comfort conferences received enthusiastic acceptance from Canadian warm air heating dealer-contractors. These delegates attended the Hamilton, Ont. school

would have in his files for reference purposes a plan of an "ideally designed heating system."

Martin Addresses Pittsburgh Group

JAMES M. MARTIN was the guest speaker at a recent meeting of the Heating and Air Conditioning Contractors Association of Pittsburgh. Mr. Martin explained the National Warm Air Heating and Air Conditioning Association's "Silver Shield" program, designed to promote the sale of quality warm air heating and air conditioning systems.

Coming Events

May

May 15 — National Warm Air Heating & Air Conditioning Association, Heat Loss Committee meeting, Cleveland Hotel, Cleveland. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14. Other committee meetings scheduled are: System Performance,

Systems Classification	May 19
Manual 9	May 20
Convection Systems	May 21
Panel & Panel-Convection	May 22
Summer Cooling	May 23
Application Engineering,	
Executive & Finance,	
Membership, Short Course,	
Publicity & Merchandising	June 4
Board of Trustees	June 5

June

June 9-13 — Oil-Heat Institute, annual convention and exposition. Park Sheraton and Barbizon Plaza Hotels and the Coliseum, New York City. R. H. L. Becker, managing

director, Oil-Heat Institute, 500 Fifth Ave., New York 36.

June 20-21 — Roofing, Sheet Metal, Heating & Air Conditioning Contractors' Association of Alabama, annual convention. Battle House Hotel, Mobile, Ala. B. M. Johnson, 405 Frank Nelson Bldg., Birmingham.

June 23-25 — American Society of Heating and Air-Conditioning Engineers, semi-annual meeting. Nicollet Hotel, Minneapolis, Minn. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.

December

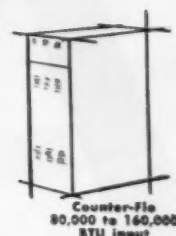
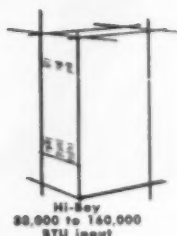
Dec. 4-5 — National Warm Air Heating and Air Conditioning Association, annual convention. Statler Hotel, Cleveland. George Boeddener, Managing Director, 640 Engineers Bldg., Cleveland 14.

Dec. 1-3 — National Heating and Airconditioning Wholesalers, annual convention. Hotel Statler, Cleveland. W. R. Bull, executive director, 1200 W. Fifth Ave., Columbus, Ohio.

MEET HEATWAVE'S NEWEST

a waterless REMOTE CONDENSER

for new and existing warm air systems



For year round air conditioning combine this new condenser with any one of Heatwave's gas fired furnaces and matching evaporator units.

It's Easy to Service. Oil sight glass, detachable valves, liquid sight glass, moisture indicator and dryer, and standard parts throughout minimize service problems.

Has Lower Operating Costs. A new, larger condenser face area gives lower operating head pressure and lower liquid temperature, resulting in lower operating costs and reduced mechanical failure. Tested under A.S.R.E. conditions in Southwest's own laboratory.

Appeals to Homeowners. The new "future look" design blends in with any landscape. A vertical hot air discharge allows grass and shrubs to grow around the unit.

There's a New Packaged Unit, Too! Heatwave has a new packaged air conditioning unit designed for existing systems and hot water or steam heat systems.

This self-contained unit is available in 23,000 and 36,000 BTU capacity models. Fully rated and tested under A.S.R.E. conditions in Southwest's own laboratory. This new unit makes many more cooling applications possible.



Learn more about Heatwave's new products and expanding sales program . . . Write Ben Church, Sales Manager, Dept. "C", Now!

HEATING

HEATWAVE

AIR CONDITIONING

Heatwave Products Are Manufactured by Southwest Manufacturing Company Box 151, Aurora, Missouri
A Subsidiary of The F. E. Meyers & Bro. Co.

AIR CONDITIONING IS PROFITABLE BUSINESS!



• A carefully worked-out selling plan has helped this business grow. Mr. Jordan is shown with sales literature and the Du Pont survey on which his sales plans are based.

“Planned selling helped our air conditioning business grow more than 400% in three years”

Reports Mr. Culver Jordan, President, Culver Jordan, Inc., Heating and Air Conditioning Contractors of Macon, Ga.



• After 25 years in sheet-metal work, Mr. Jordan's business showed tremendous expansion after he took on air conditioning in 1953. Here he is shown inspecting a residential installation in Macon, Ga. Mr. Jordan handles Carrier equipment exclusively and uses "Freon" refrigerants to help assure trouble-free performance.

“With intelligent advertising, an enthusiastic sales force and trained technicians to do a topnotch job, air conditioning has become our fastest-growing source of income,” says Mr. Jordan. “We’ve doubled and redoubled our sales in the last three years and we’re looking for a quarter of a million dollars’ worth of new business in 1958. With the help of Du Pont’s market research on central residential air conditioning, we’re sure we’ll meet this goal . . . despite talk of a recession.

“We believe in selling a quality job, so we’re happy with Carrier equipment which uses Freon* refrigerants,” continues Mr. Jordan. “With ‘Freon’ we know we’ve got the world’s best refrigerant.”

Air conditioning is profitable business—especially when you know who the best prospects are . . . where they are located . . .

and how to reach them. Thanks to Du Pont market research, this information is available to you *free*—plus a wealth of technical information on the use, storing and handling of “Freon” refrigerants. For more information, contact your complete air conditioning and refrigeration wholesaler or write: E. I. du Pont de Nemours & Co. (Inc.), “Freon” Products Division 175, Wilmington 98, Delaware.

Always ask for “Freon” from the wholesaler who displays this sign . . .



FREON® REFRIGERANTS

*Freon and combinations of Freon- and F- followed by numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.



REG. U.S. PAT. OFF.

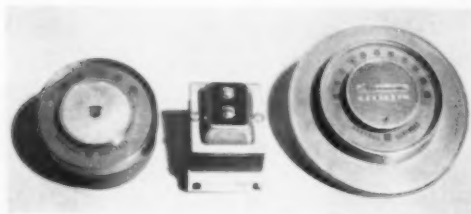
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Outdoor Control System

OUTDOOR CONTROL SYSTEM for regulating indoor heating temperatures in advance of outside temperature changes—*General Controls Co., Dept. AA, 801 Allen Ave., Glendale, Calif.* Thermal-electric, three-unit packaged system contains no moving or wearing parts and can be installed with any new automatic heating sys-



tem. Components are an outdoor thermostat which detects weather changes, an indoor thermostat which receives and relays heat demands to furnace and a 24-v, 60 cycle transformer which supplies current. Weather changes affect flow of electric current through outside sensing device, operating miniature thermostat heater which activates the room thermostat.

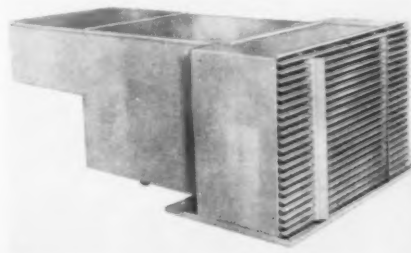
Direct Drive Blower

NON-OVERLOADING direct drive blower in sizes from 12 to 36 in., with volumes from 1110 to 24,560 cfm—*Peerless Electric Co., Fan and Blower Div., Dept. AA, 1401 W. Market St., Warren, O.* Air enters blower wheel through spun venturi, discharges over airfoil cutoff. Frames and housings are heavy gage metal, are welded into one piece. Tapered lock bushing with keyway mounts wheels on motor shaft. Extra features include: drive covers, vibration pads or bases, spark-resistance; inlet vane control, access doors, inlet or discharge screens, flanged inlets and outlets, automatic or motorized discharge dampers, drain fittings and special finishes or constructions. High speed units are available for two-speed operation.

Air-to-Air Heat Pump

MODEL 1103-01 PACKAGED 3 hp air cooled air conditioning unit with reversing valve for changing direction of refrigerant flow—*Airtemp Div., Chrysler Corp., Dept. AA, 1600 Webster St., Dayton 4, O.* Duct type supplemental electric heater mounted on inside of cabinet across discharge air stream is available to operate the unit under four sets of conditions:

cooling only; reverse cycle only; reverse cycle plus supplemental heat (when outside ambient temperature drops below 45 F); and supplemental heat only (when



temperature drops below 25 F). Remote two-step thermostat has three selector switches for operation of unit, selection of cooling or heating and automatic or constant fan operation. Features are: hermetically sealed compressor with built-in muffler, mounted on internal springs; bonderized steel cabinet; two permanently-lubricated motors.

Centrifugal Dust Collectors

SERIES C CENTRIFUGAL collectors in two design types totaling 41 sizes—*Kirk & Blum Mfg. Co., Dept. AA, 3100 Forrer St., Cincinnati 9, O.* Design 3 model is engineered to handle shavings, sawdust, polishing and



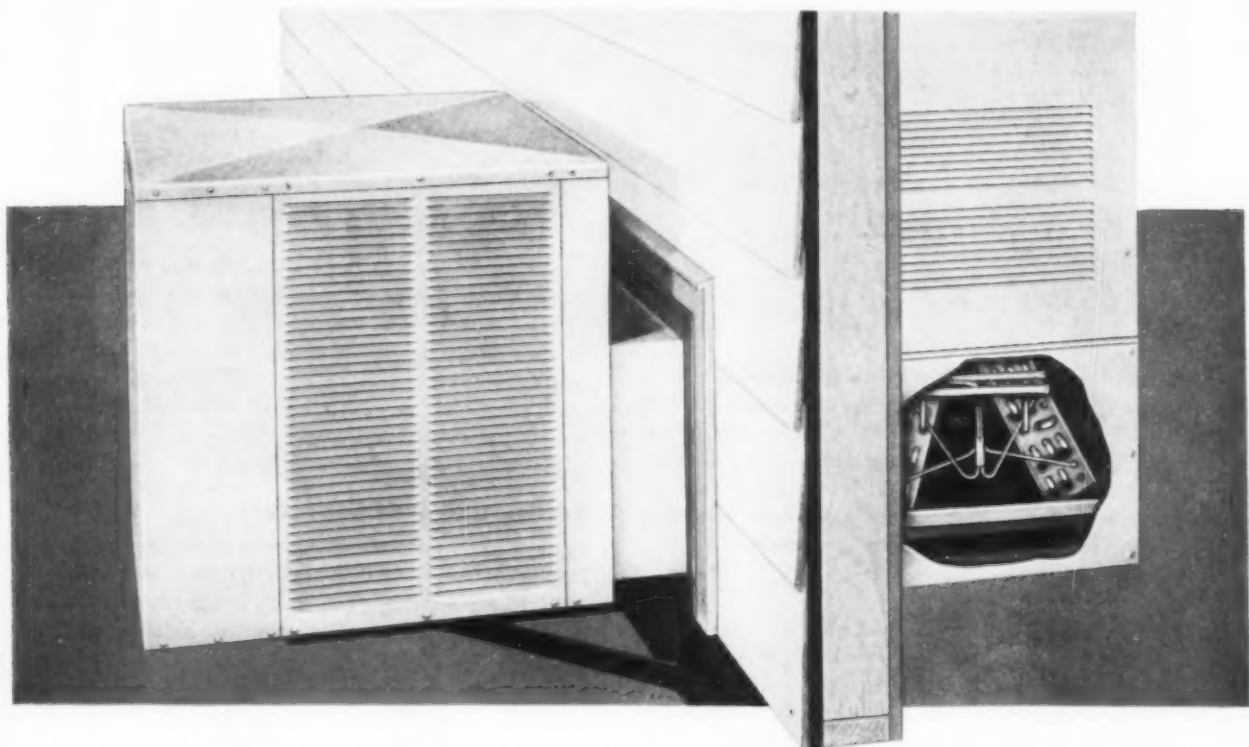
buffing residues, etc., where dust size runs above 44 microns but contains small percentages down to 20 microns; capacities range from 350 to 54,500 cfm. Units operate at 2 in. water column static pressure where air density and rating are normal. Design 5 unit, for dust particles below 44 microns, has small diameter, long cone. Normally rated at 4 in. water

(Continued on page 116)

THREE NEW PRODUCTS TO HELP YOU SELL EVERY PROSPECT!

① new Frigidaire Trans-Wall

SLIDES IN LIKE A DRAWER!



PROVIDE FULL-HOME AIR CONDITIONING NOW...OR
LATER WITH EVERY NEW FURNACE YOU INSTALL!

Another Frigidaire First! Installed For a Year at NAHB Research House

Here's a completely new concept in full-home air conditioning—the Frigidaire Trans-Wall System! New "slide-in" Trans-Wall Units are now in production after a full year in an actual installation at the NAHB (Home Builders) Research House, Kensington, Md.

The Frigidaire Trans-Wall System is the simplest, most compact year-round comfort maker ever devised. Here's why! The complete *all-in-one* Trans-Wall Unit consists of an air-cooled condensing unit with twin Super Meter-Miser Compressors plus a "wall-sleeve" that slides through wall to furnace, and a high-effi-

ciency "inverted V" cooling coil that fits into pre-installed housing to give full-home conditioning with any Frigidaire furnace.

Ready to Install—FAST!

All internal wiring is done, refrigerant lines connected, system sealed and checked by the factory. With the furnace located at an outside wall of the house and coil housing in place, all you do is slide Trans-Wall in place and wire in. Trans-Wall System utilizes furnace blower and ductwork.

FRIGIDAIRE DIVISION

General Motors Corporation, Dayton 1, Ohio

While Others Dream of the Future—

FRIGIDAIRE

full-home air conditioner

INSTALLS EASIER THAN SIMPLEST FURNACE!

New—completely self-contained
air-cooled package

Simplified installation

No concrete base needed

Factory-sealed

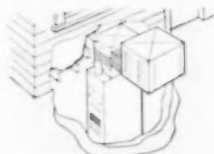
Uses furnace blower
and ductwork

No plumbing for water supply

No refrigerant connections

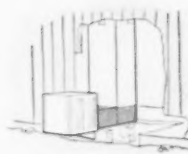
Two sizes
24,000 and 35,000 BTU/hr.

Twin compressors



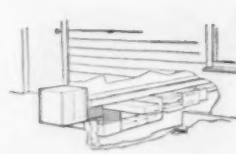
BASEMENT TRANS-WALL SYSTEM

Trans-Wall Unit slides into coil housing above Frigidaire Vertical Upflow Type Furnace. Adaptable to Lowboy Type.



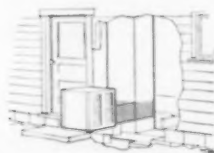
SLAB TRANS-WALL SYSTEM

Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace in housing.



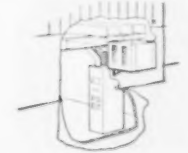
CRAWL SPACE TRANS-WALL SYSTEM

Frigidaire Horizontal Type Furnace. Trans-Wall Unit installs in crawl space with plenum added below coil housing.



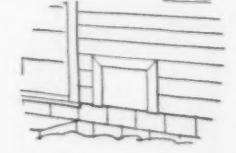
CRAWL SPACE TRANS-WALL SYSTEM

Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace. (Modified Slab hook-up.)



TRI-LEVEL TRANS-WALL SYSTEM

Trans-Wall Unit, bracketed above ground level, installs in coil housing above Frigidaire Vertical Upflow Type Furnace.



ROUGH-IN NOW—INSTALL LATER

Locate new furnace adjacent to outside wall, add coil housing and prepare wall opening. Slide in Trans-Wall Unit at later date.



SIMPLIFIED INSTALLATION! TRANS-WALL UNIT SLIDES INTO WALL OPENING 14" x 24"

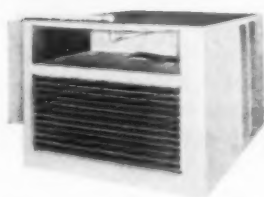
Less than 350 lbs. net weight, new AIAZ-240 Frigidaire Trans-Wall Unit is easily installed by two men using ordinary tools. Trans-Wall easily adds a full 24,000 BTU/Hr. of Dry-Cool Comfort in virtually any style home after furnace and coil housing have been installed.

1. Rough-in opening. 2. Attach outside mounting brackets (furnished). 3. Complete installation by sliding Trans-Wall Unit in place—connect control box (furnished) and wire in. 35,000 BTU/Hr. unit weighs 370 lbs. and requires slightly larger wall opening 17½" x 24".

2

NEW HORIZONTAL CONDITIONERS

Air-Cooled



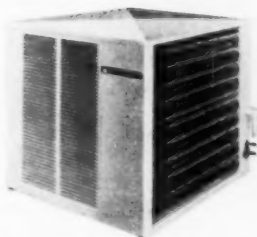
Model AAZ-190 full 19,000 BTU/hr. cooling capacity. Model AAZ-340 full 34,000 BTU/hr. cooling capacity.

• Compact. Some installations require wall opening less than 2½ ft. x 2 ft. • Factory wired to external control box, and tested to minimize on-site costs. • Sealed Super Meter-Miser Compressors never require oiling. • Model AAZ-340 has two compressors (only one operates during mild weather).

3

NEW CONDENSING UNITS

Air-Cooled. 2 and 3 ton sizes



Model CUAZ-210—full 21,000 BTU/hr. capacity. Model CUAZ-320—full 32,000 BTU/hr. capacity. Other Frigidaire Condensing Units with capacities up to 87,000 BTU/hr.

These new lower-priced units have built-in Frigidaire quality and take less than 5½ sq. ft. of floor or ground space.

- Pre-wired to external outlet box—cuts installation costs.
- Powerful 20" propeller fan mounted on motor shaft eliminates pulleys and belts.
- Full hermetically sealed reciprocating compressor contains lifetime supply of oil.
- Multipath condenser coil design speeds heat removal.
- Weather resistant cabinet for long life.

IS ON THE MARCH!



Frigidaire—Built and Backed by General Motors

For more information call the Custom Products Representative at your Frigidaire distributing headquarters.

equipment developments

(Continued)

column static pressure at standard air density, units are in capacities from 260 to 6500 cfm.

Self-Contained Heat Pump

AIR-TO-AIR HEAT PUMPS in 2, $3\frac{1}{2}$ and 5 ton models, with cooling capacities of 22,000, 35,000 and 50,000 Btuh, respectively—*Typhoon Air Conditioning Co.*,



Div. of Hupp Corp., Dept. AA, 505 Carroll St., Brooklyn 15. Reversing is automatically controlled by thermostat; supplemental electrical resistance heaters are available. Unit is said to be adaptable for any type of installation suitable for air-cooled air conditioner, in residential or commercial applications. "Oversize" hermetically sealed compressors are operated by 230-v single-phase motors. Two stage 8, 12 and 16 kw supplemental heaters bring heating capacities to 49,800, 75,900 and 104,500 Btuh.

Air Scoop Rails

"SCOOP-RAIL" METAL STRIPS designed for fabricating air scoops for branch ducts and grille collars—*Cain Mfg. Co., Dept. AA, 1111 N. 5th Ave., Birmingham,*



Ala. Galvanized rail is 24 ga, $4\frac{1}{2}$ in. wide, 100 ft long, coiled in dispenser carton. Rail is split down center line; half of rail is used for top of unit; balance is used for bottom. Button indentations $1\frac{5}{8}$ in. on cen-

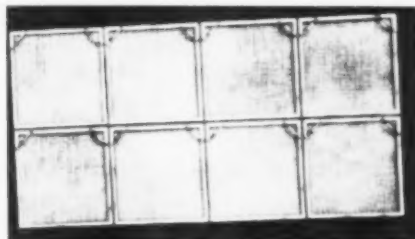
ter are slotted to hold turning vanes which are peened in place with hammer. Fifty speed nut tabs for $\frac{3}{8}$ in. square rod are included with each carton. (Square rod is used where quadrant or ceiling control is desired.)

Return Air Filter Grille

"PRECISIONAIRE" MODEL RHD return air filter grille in eight standard sizes from 12×12 in. to 36×24 in., in capacities from 300 to 1920 cfm—*D. F. Bowman Co., Inc., Dept. AA, P. O. Box 449, Clearwater, Fla.* Grille opens outward from bottom; filter is inserted in channel quickly, the company reports.

Filter Bank Assembly

FILTER BANK UNIT with "Seal Tight" filter frame designed to provide dust-tight seal between filter and holding frame—*George Evans Corp., Dept. AA, 121 37th St., Moline, Ill.* Polyvinyl chloride gasket pressure-locks filter into frame automatically, molding it-



self to filter contour and sealing out dust, the company states. Designed to last through life of equipment, the gasket is unaffected by oil or moisture and does not support combustion. Standard sizes are available. Frames fasten in three places on each side with machine screws and self-locking nuts.

Decorative Metals

"ARMORWEAVE" "FESTOON" and "Cathedral" decorative expanded metals with $1\frac{1}{2}$ in. wide mesh openings and new pattern—*United States Gypsum Co., Dept. AA, 300 W. Adams St., Chicago 6.* Metals are cold-drawn from solid sheets of aluminum or carbon steel. They may be curved, formed, welded and cut without raveling. Variety of finishes may be applied by anodizing, porcelain enameling and painting.

Gas-Fired Incinerator

"WARM MORNING" MODEL L-16 gas incinerator said to be smokeless and odorless—*Locke Stove Co., Dept. AA, 114 W. 11th St., Kansas City 5, Mo.* Dual burner and system of interior baffles are said to minimize smoke and odor. Gas flames from front part of dual burner are directed into a firebrick-lined combustion chamber which holds approximately 1.6 bu.; flames



WEIRKOTE® — THE RIGHT CHOICE BY EVERY MEASURE

No matter what the specifications of your heating or air-conditioning duct work, Weirkote will meet them as only a quality zinc-coated steel can. No other metal can match it.

Take, for instance, the strength and rigidity of Weirkote. It's a natural for spanning large areas without bending or buckling and with a minimum use of supporting brackets. Consider, too, its fire protection. Its higher melting point makes it provably safer than competing metals. Since ducts sometimes carry volatile matter with a low flash point, this protection can be vital.

Important, too, is Weirkote's economy. Made by the continuous process which integrates zinc and steel, Weirkote can be worked to the very limits of the steel itself without flaking or peeling. Permanent corrosion resistance is provided in every seam and surface. Which, of course, all adds up to longer, maintenance-free life for Weirkote ducts. And its ease of installation cuts cost still further.

After a Weirkote duct installation is in and operating, your clients will find still another reason to be glad you specified Weirkote—it's quiet. Noisy creaks and cracks of expansion and contraction are minimized. With all these advantages plus economy, you just can't go wrong with Weirkote.

Free Weirkote Booklet

Send for the new booklet on Weirkote today. Write Weirton Steel Company, Dept. J-4 Weirton, W. Va.



**WEIRTON STEEL
COMPANY**

WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION

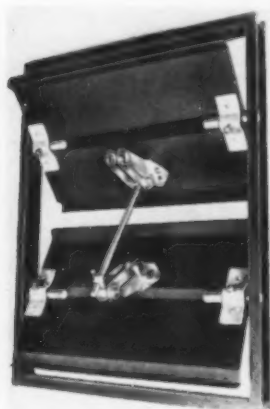
equipment developments

(Continued)

from rear portion are concentrated in secondary chamber separated from main burning area. Products of combustion must pass two baffles, heavy screen and flame of the after-burner. Barometric damper keeps chimney draft constant, reduces flue temperatures. Unit is 18 × 21 × 32 in. Input is about 38,000 Btuh.

Damper Linkage Set

"OPAX" OPPOSED ACTION linkage set for multi-blade dampers—Duro-Dyne Corp., Dept. AA, Route 110, Farm-



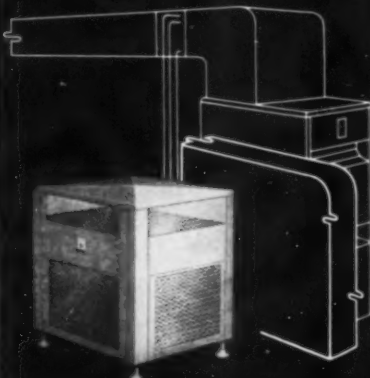
ingdale, N. Y. Set consists of two brackets plus pre-attached linkage rod which is said to operate damper blades of all common sizes accurately. Action provides four way self-adjustability for construction inaccuracies, prevents binding and reduces assembly time, the company states.

Orifice Ring Fan

TYPE DC DIRECT-connected orifice ring fan for industrial ventilation and fume removal, designed to produce uniform air pattern with airfoil blade design—Chicago Blower Corp., Dept. AA, 9867 Pacific Ave., Franklin Park, Ill. Hub is in equal proportion to wheel surface, to eliminate dead spots or partial stalling. Aluminum or steel blades are hollow, die-formed in one piece and welded shut. Each of 14 models, ranging from 12

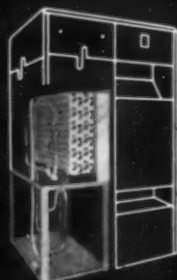
TODAY'S OF RESIDENTIAL AND *113 models and sizes, including*

AIR-COOLED REMOTE SYSTEMS

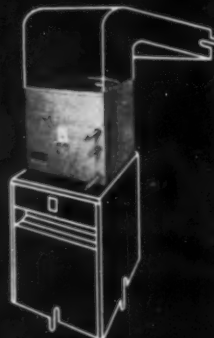


Outdoor air-cooled condensing unit

The American-Standard outdoor condensing unit is easily connected to any new or existing forced warm air heating system, along with an evaporator unit of matching size, to provide 2, 3 or 5 hp cooling capacity. Where steam or hot water heating is already installed, the blower-equipped evaporator provides air distribution. Refrigerant circuit is covered by a 5-Year Protection Plan.



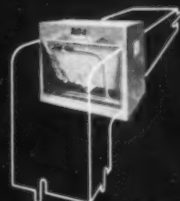
Slide-in evaporator
in American-Standard
year-round unit



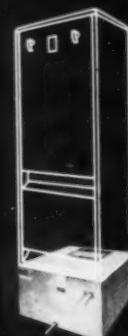
Vertical air-flow
evaporator



Blower-equipped
evaporator



Horizontal air-flow
evaporator



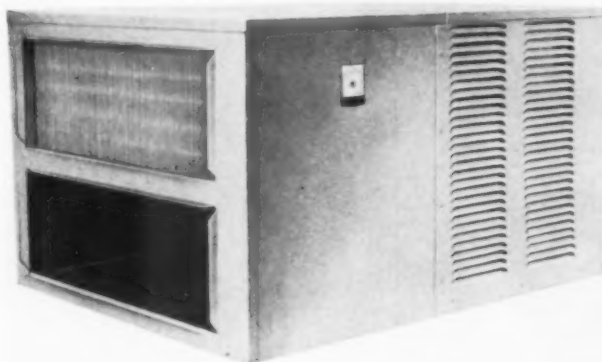
Counterflow evaporator

MOST COMPLETE LINE

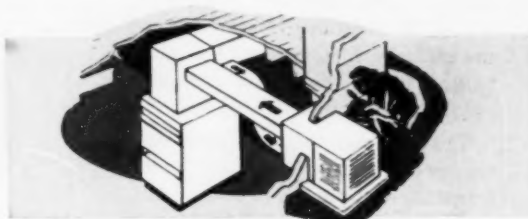
LIGHT COMMERCIAL AIR CONDITIONERS

water-cooled models as well as the air-cooled units shown here

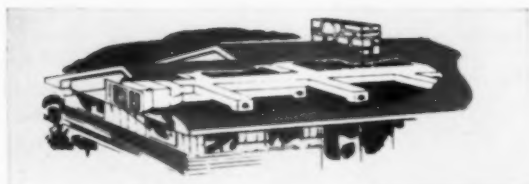
AIR-COOLED PACKAGE SYSTEMS



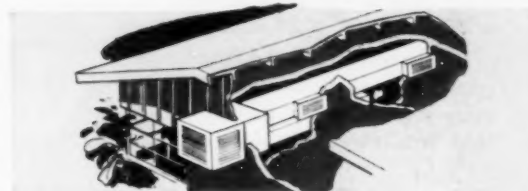
The American-Standard twin-compressor package unit delivers *continuous* air circulation and dehumidification for 24-hour-a-day comfort. Available in 2 and 3½ hp sizes. Refrigerant circuit is covered by 5-Year Protection Plan. The American-Standard low cost pre-fabricated duct system, furnished as optional equipment, speeds installation, increases your profit.



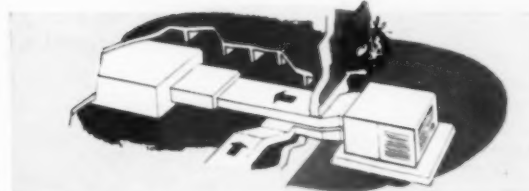
Basement application



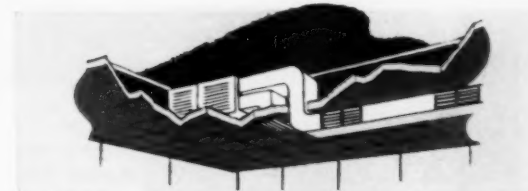
Gable roof—attic installation



Central hallway installation



Crawl space adaptation



Commercial flat-roof installation

Contact your American-Standard* Air Conditioning Division Distributor

* American-Standard and Standard ® are trademarks of American Radiator & Standard Sanitary Corporation.



AMERICAN-Standard

AIR CONDITIONING DIVISION



Designed and engineered by McQuay, and suitable for all fuels, (Type A) this new package chimney has a 7" stainless steel flue with aluminized steel interliner and outer casing. The interliner is supported by the exclusive McQuay stainless steel tension spring spacers for strength, rigidity and durability.

This McQuay thermo siphon design permits quick drafts and even temperatures from top to bottom for peak efficiency. There is nothing to deteriorate, nothing to collect soot. Roof housing is large, measuring 16" x 20" with a 20" x 24" cap.

For the best results, and for greatest economy, recommend and use this McQuay package chimney on every job. Territories are now being assigned. Write McQuay, Inc., 1653 Broadway Street N.E., Minneapolis, Minnesota.

Meets the Original and More Severe Underwriters' Laboratories Standards 103, March, 1956



ECONOMY—Costs from one-third to one-half as much as brick installed. All pre-assembly has been done to eliminate costly on-the-job time and labor.

SAFETY—Listed under the re-examination service of Underwriters' Laboratories, Inc., and on the approved list of F.H.A. and V.A.

QUICK AND EASY INSTALLATION—Average installation time is less than one hour after openings are prepared.

LONGEST SERVICE LIFE—Flue is of stainless steel to permanently withstand effects of combustion gases. Starter box and starter sections are in one unit. Standard 24", 18" and 12" sections give any desired length.

LIGHT WEIGHT—Load on support joists is only 9 pounds per foot of chimney length.

SHIPPED COMPLETE—with easy-to-follow instructions for installing. Units are individually packaged.



McQuay stainless steel tension springs separate and firmly position stainless steel flue.

equipment developments (Continued)

to 72 in., is available with 2, 4, 6 or 8 blades. Standard motors operate in temperatures up to 120 F.; glass-insulated models are available for operations ranging up to 180 F. All units are designed for horizontal or vertical installations.

Heat Pumps

AIR-TO-AIR, self-contained heat pumps in 2, 3½ and 5 hp sizes, with cooling capacities rated from 24,000 to 48,000 Btu and heating capacities from 22,600 to 103,400 Btu using



duct heaters—*Perfection Industries Div. of Hupp Corp., Dept. AA, 1135 Ivanhoe Rd., Cleveland 10, O.* "Selectaire" metering device permits tailoring of evaporator air delivery to fit specific air volume requirements of duct systems. Larger models have twin compressors with step starting. Cooling coil is diagonally-mounted, five rows deep; condenser coil is 4 rows deep, connected to distributor for proper distribution when flow is reversed. Cooling and heating are independent. Supplementary electric heaters are available.

Plastic Welders

"KAMLAR" MODEL HT high speed plastic welding equipment with standard welding tip or high speed tacking tip which permits rodless tacking—*Laramy Products Co., Dept. AA, 90 South St., Hingham, Mass.* Tacking tip fuses edges together so large sheets can be lifted and moved without coming apart. With flat tip, V-tip and strip feeder, unit is used to heat-seal a vinyl strip on plasticized vinyl. High speed tips (for 1/8, 5/32 and 3/16 in. rod)



the PAY-OFF in...BUYING and SELLING...QUALITY

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your pocket

Increased profits for you come from Fraser-Johnston top quality engineering and construction which assure you...

FAIR
MARGIN

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CUSTOMERS

EASIER
FASTER
INSTALLATION

PROPERLY
SIZED
INSTALLATIONS

FEWER
CALL BACKS

Fraser-Johnston's basement, upflow, counterflow and horizontal furnaces with matching coils and condensing units make up today's "value line of the air conditioning industry."

Write for complete catalog and prices.



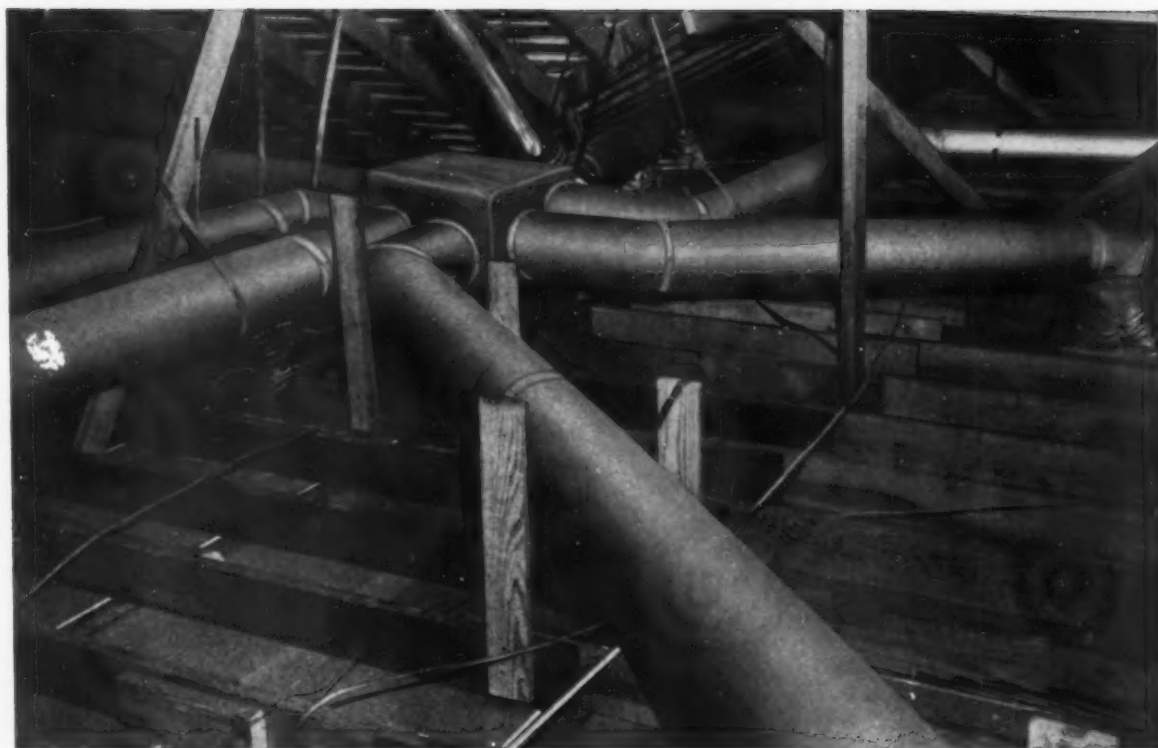
*Happy, comfortable, healthy
air conditioning
users measure
our success*



Manufactured by

Fraser-Johnston

OVER A QUARTER CENTURY OF LEADERSHIP • 1900 - 17TH STREET, SAN FRANCISCO, CALIFORNIA



**During the rush season just ahead, you'll
INSTALL MORE JOBS, MAKE MORE MONEY
with new G-B DUCT!**

Don't miss the boat during the busy months that lie ahead — see your local distributor of new G-B Duct right away about the first prefabricated round glass fiber duct! Actual cost comparisons reveal that G-B Duct, compared with metal insulated ducts, can save you 22%-27% on application costs — and up to 50% in installation time!

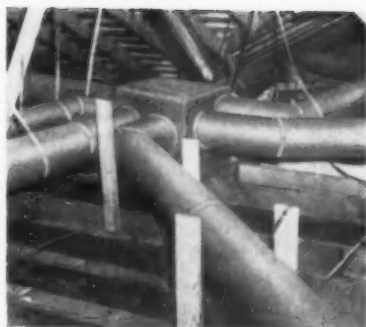
Here's why: G-B Duct comes in one-piece 6-ft. sections, *ready-to-use* — no pre-assembly, no folding. With G-B Duct there are no longitudinal flaps or seams to be stapled and taped — no messy adhesives and no drying time. G-B Duct can easily be cut and fitted with a knife and the templates provided, and sheet metal collars and connections are readily available. Sizing is no problem because G-B Duct is made in the same nominal sizes as round sheet metal pipe and fittings.

For every heating, air conditioning or combination job, use G-B Duct — and you'll save time and money. And after installation, you'll have no worries about a "tight" job. Uniformly thick glass fiber walls provide positive thermal insulation and maximum sound absorption, while the continuous airtight plastic vapor barrier sleeve positively prevents condensation.

FOR NAME OF YOUR NEAREST SUPPLIER, SEE ADJOINING COLUMN

GUSTIN-BACON *Manufacturing Company* 

Thermal and acoustical glass fiber insulations • Pipe couplings and fittings • Molded glass fiber pipe insulation
226 W. 10th St., Kansas City, Mo.



G-B DUCT DISTRIBUTORS

(See ad on facing page)

AMARILLO, Morrison Supply Co.
ATLANTA, Reynolds Aluminum Supply Co.
AUGUSTA, Ga., Noland Co.
BALTIMORE, Leroy Insulation Co.
BILLINGS, Mont., Big Horn Supply, Inc.
BIRMINGHAM, Hall-Newsome Co.
Hart-Greer, Inc.
Shook & Fletcher Supply Co.
BROOKLINE, Mass., Homans-Kohler, Inc.
BUFFALO, Industrial Insulation Sales, Inc.
CHARLESTON, Dunbar Metal & Supply Co., Inc.
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CHATTANOOGA, Guy M. Beatty & Co.
CHICAGO, E. C. Carlson Co.
CLEVELAND, The Miles Materials Co.
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DENVER, Gene Wright Lumber Co.
DES MOINES, Iowa Asbestos Company, Inc.
DETROIT, J. L. Johnston Co.
FORT WORTH, The Bracken Company
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INDIANAPOLIS, Central Supply Company
JACKSON, Miss., Paine Refrigeration & Supply Co.
JACKSONVILLE, Florida Air Conditioners
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LOUISVILLE, General Insulation & Roofing Co.
LUBBOCK, Tex., Morrison Supply Co.
MIAMI, Crabtree Insulation Co.
Fiber Duct Distributors
MYRTLE BEACH, S. C., Air Conditioning Supply
NEW HAVEN, Conn., Insulation Supply Co.
NEW ORLEANS, Eagle Asbestos & Packing Co.
NEW YORK, Eastern Steam Specialty Co.
NORFOLK, Va., Automatic Equipment Sales Co.
OMAHA, Cardinal Supply Co.
ODESSA, Tex., Morrison Supply Co.
PHILADELPHIA, John F. Scanlan, Inc.
PHOENIX, Kircher Asbestos & Rubber Co.
PITTSBURGH, Dravo Corporation
RICHMOND, Automatic Equipment Sales Co., Inc.
Reynolds Aluminum Supply Co.
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ST. LOUIS, Hollander & Co., Inc.
SALISBURY, Md., Automatic Equipment Sales Co., Inc.
SALT LAKE CITY, Bulough Asbestos Supply Co.
SAN ANTONIO, The Bracken Co.
SAN FRANCISCO, Western Fibrous Glass Products Co.
SEATTLE, Western Fibrous Glass Products Co.
SHREVEPORT, La., Frith Sales Co.
SOUTH BEND, Place & Co.
SYRACUSE, Industrial Supply Co.
TALLAHASSEE, Baker's, Inc.
TAMPA, Eagle Roofing & Art Metal Works
TULSA, Ball Distributing & Engineering Co.
VANCOUVER, Fleck Bros., Ltd.
WALDORF, Md., Automatic Equipment Sales Co., Inc.
WASHINGTON, D. C., Walter E. Campbell Co.
Wilson Supply Co., Inc.
WINSTON-SALEM, N. C., Air Conditioning Supply



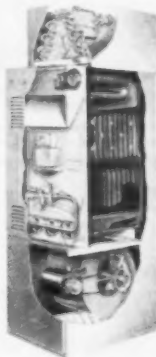
equipment developments

(Continued)

hold, feed and guide rod automatically at speeds up to 50 in. per minute, the company states. Tip cuts rod cleanly at end of weld. Handles are air cooled and electrically insulated.

Heating, Cooling Line

LINE OF HEATING, air conditioning and year 'round central residential units—The Trane Co., Dept. AA, LaCrosse, Wis. Five highboy furnaces range from 77,000 to 155,000 Btu input, burn natural, mixed or LP



gases. They are 26 in., deep, 16 to 24 in. wide. Add-on cooling unit features remote condensing unit and furnace mounted cooling coil. Condensing unit is air cooled. Two, 3 and 5 ton capacities are available. Cooling coil is inverted V type. Duct cooling coil, inclined for applications where head space is limited, provides horizontal air flow. Capacities are 2, 3 and 5 tons. Independent fan-coil units in 2, 3 and 5 ton models are designed to match condensing units. For commercial application, accessory discharge chamber for free discharge is available.

Isolation Mountings

TYPE LO SPRING isolation mountings designed to cut machine installation time, reduce vibration and maintain accuracy—The Korfund Co., Inc., Dept. AA, 48-01-A 32nd Pl., Long Island City 1, N. Y. Cushioning medium is steel springs with load-



VITROLINER
prefabricated *Chimneys*

FOR ALL HOME BUILDERS

Builders and Contractors, large and small alike are SOLD on Vitroliner chimneys! Here's why—

- **QUALITY-BUILT** of finest materials for safety and long life.
- **ENGINEERED** construction using the same time-tested design, for more than 15 years.
- **ASSEMBLED** on the job in lightweight sections for fast easy installation in floor or ceiling joists, providing maximum flexibility.
- **FEATURES** the choice of many Styles, Sizes, Colors and Flue Diameters.
- **AVAILABLE** from Chicago factory, tailor-made to fit. Also shipped in knocked-down form by nearby distributors and dealers direct to the job.

All Vitroliners are class "A" chimneys for one or two story homes and buildings, providing complete chimney functions.

Listed by Underwriters Laboratories for all fuels—accepted by Local and State Building Authorities—Insurance Rating Bureaus—and the Building Officials Conference of America.

Write today for details.



CONDENSATION
ENGINEERING CORPORATION
3531 W. POTOMAC AVE., CHICAGO 51, ILL.

ALL SHIPPED IN
DISPENSER-TYPE CARTONS



COILS OF PROFIT

*Quick, Economical, Easy, and
Practical Methods for ---*

**FABRICATING FLEXIBLE DUCT CONNECTIONS
VANES FOR ELBOWS • AIR SCOOPS AND LOUVERS**



PRE-FAB-RIC

A PREFABRICATED FLEXIBLE DUCT CONNECTION

Using a fabric (of your choice) in the center with a galvanized metal strip on each side. *Double-Sure Locked* together in a single continuous piece, coiled in a dispenser-type carton ready for use.

A TYPE, SIZE, AND PRICE FOR ALL JOBS

THREE GRADES
Commercial - Economy
Residential

THREE FABRICS
Canvas - Asbestos
Neoprene

FAB-RIC

TOP QUALITY FABRICS (Without Metal)
Same Weight and Width (5") Used in PRE-FAB-RIC. Put Up in 100' Rolls



INSTANT-VANE RAIL

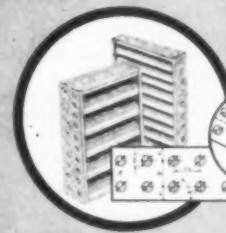
ELIMINATES

Layout, Tab Cutting, Hole Punching, Spot Welding, Riveting, Etc., Results in a Savings Up to 70% over old methods.

Best method ever devised for installing turning vanes (single or double) in sq. elbows.

100 FT. COILS

ENGINEER APPROVED



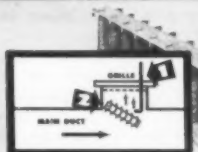
LOUVERAIL

ELIMINATES

Layout, Tab Cutting, Hole Punching, Riveting, Spot Welding, Etc.

AN ECONOMICAL AND PRACTICAL METHOD FOR FABRICATING LOUVERS — REMOVABLE, HINGED, OR STATIONARY. LOUVERAIL is 24 ga. galvanized 4 1/2" wide in (2—50' lengths) 1 right and 1 left coiled together.

Split (1/2) Rail for Louver Thicknesses From 1 1/4" to 1 3/4".
Use Full Size Rail for Louver Thicknesses From 3 1/4" to 4".



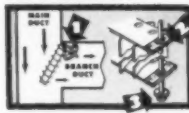
SCOOP-RAIL

ELIMINATES —

- Radius ell, transition, and splitter damper at branch duct take-offs.
- Volume damper on grille.
- Job delay in ordering.

SCOOP-RAIL for fabricating air scoops for branch ducts and grille collars. Insuring uniform air distribution. Complete control of air volume in branch duct or at grille face. Simplifies balancing of the system.

USED AT BRANCH DUCT



1. Not necessary to remove grille to adjust volume. Use bent rod or wire thru grille to adjust unit in and out of main duct.
2. S. M. screws at top and bottom.

1. 1/2" standard quadrant where accessible.
2. Speed nut tabs for 1/2" square rod are riveted, spotwelded or s. m. screwed to ends of SCOOP-RAIL.
3. Where desired elg. control may be used.

SOLD ONLY THROUGH JOBBERS AND DISTRIBUTORS Union Made
Some Territories Open for Manufacturers Agents Calling on Jobbers and Distributors

CAIN MANUFACTURING CO.

1111 North 5th Avenue

Phone FA 2-0354

Birmingham, Alabama

equipment developments

(Continued)

carrying capacities from 150 to 23,000 lb. Cast semi-steel housings have access port on each side for interior inspection, and cleaning spring replacement. Flat top permits placing unit in any position under a machine base to provide maximum support regardless of location or size of bolt holes. Mount has built-in leveling bolt; tapped holes can be supplied in top plate.

Nibbling Shear

MODELS BN-1, BN-2 AND BN-3 column-mounted electric throatless nibbling shears which operate at 1725 cutting strokes per minute and han-



dle 14 ga, 10 ga and 3/16 in. mild steel; and 18 ga, 14 ga and 10 ga stainless steel, respectively—*Beverly Shear Mfg. Co., Dept. AA, 3001 W. 111th St., Chicago.* Throatless design permits work to be turned in any position for cutting various shapes. Shears have 30 in. column and base; bench base with 5 1/2 in. column is available. Shear may be swiveled in full circle, locked in any position.

Flexible Duct

"THERMAFLEX ST" flexible duct for air conditioning systems—*Flexible Tubing Corp., Dept. AA, Guilford, Conn.* Duct consists of continuous vinyl-coated glass fiber cover, permanently fused to vinyl-coated spring steel wire helix. It is suitable for use with high or low pressure systems. No elbows or special fittings are

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The VICTOR 15-year WARRANTY is NOW for 20 YEARS! It adds more positive protection for your customers . . . and is another great VICTOR sales tool for greater satisfaction . . . FASTER sales and Greater Profits for YOU! Win with VICTOR'S new "ONE-TWO" PUNCH!



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Number "2" of VICTOR'S "One-Two" punch is the dramatic, sales-closing Table-Top FIN Demonstrator. Twin thermometers tell the story of patented VICTOR FIN efficiency. It proves, right before their eyes, that the exclusive VICTOR FINS save up to 30% in fuel used. It's honest . . . it's dramatic . . . It closes sales FAST!

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Quality Furnaces Since 1890

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HALL-NEAL FURNACE CO.

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DURO

DYNE

announces NEW INSULATION ADHESIVE IA-22



Coverage:

Brush Application — 230 + sq. ft. per gallon

Roller Application — 270 + sq. ft. per gallon

Temperature Range:

— 30°F to 325 + °F (Blanket)

— 30°F to 250 + °F (Board)

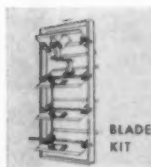
At last! A specific use adhesive designed for a quick, strong, permanent bond of insulation to sheet metal.

Duro-Dyne's new Insulation Adhesive IA-22 was created for bonding insulation to metal; insulation to insulation (at joints); sealing joints; "Buttering" insulation edges. Designed for glass-fiber, asbestos and cork insulation, etc.

Tack time is only 10 seconds! This means the bond is immediate and positive. What's more, long "open time" range permits bond one hour or longer after application of adhesive. Permits rapid coating of duct surfaces and provides positive bond of heavy insulating materials without auxiliary holding devices.

Duro-Dyne Adhesive IA-22 is water proof, clear in color, solvent in petroleum-naphtha or white gas. Requires no thinning. For full details, write today.

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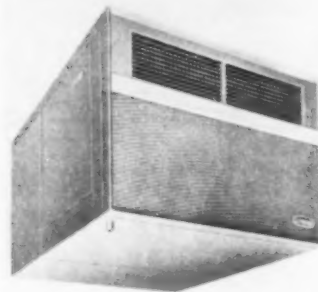
DURO-DYNE CORP., Route 110, Farmingdale, New York

equipment developments (Continued)

required. Duct is watertight, airtight and flame-proof and resists crushing, the company states. It is available in 16 ft lengths, 2 to 10 in. diameters.

Water Cooled Units

SELF-CONTAINED, water cooled commercial summer air conditioning units in 5 and 8 ton models—Typhoon Air Conditioning Co., Div. of Hupp Corp., 505 Carroll St., Brooklyn 15. Ceiling mounted units are 57



× 44 × 32 in. Five ton model provides cooling capacity of 60,600 Btu/h; 8 ton unit is rated at 97,500 Btu/h. Units are available with plenum grille for free throw air distribution, or may be used with duct work. Units are available with optional line voltage or low voltage control systems. Counterflow condensers are all-copper, tube-within-tube design to cut water consumption. Low pressure drop permits use of same circuitry for city water or cooling tower operation.

Commercial Water Heater

MODEL COM-65, 65 gal commercial water heater with 100,000 Btu input for natural, manufactured and mixed gases, and recovery of 84 gph at 100 F rise—Trageser Copper Works, Inc., Dept. AA, N. Y. International Airport (IDL), Jamaica 30, N. Y. Unit features solid copper tank encased in steel shell. Copper core is tested to a pressure of 450 psi and is said to be suitable for working pressures up to 191 lb. Unit has no



JALZINC

superior quality
zinc coated steel



This lightweight, self-ventilating roofing material, made of JalZinc, is produced by the McDowell Manufacturing Co., Pittsburgh, and marketed through the Ewart Steel Roofing Corp., Pittsburgh. Tile is supplied in any combination of 35 non-fading colors.

Colorful new metal roof tile made from JALZINC offers strength with corrosion resistance

JalZinc zinc coated steel sheets, stamped to resemble tile, are now available for building construction and home modernization jobs through the Ewart Steel Roofing Corporation, Pittsburgh. The tile product is gaining fast acceptance for modern low-pitch roofing.

This unique roofing material weighs only 120 pounds per 100 square feet. It is stamped in cantilever design. Interlocking sheets provide air space between sub-roofing and JalZinc. When coated with special mastic and colored granules, the roofing is securely anchored with all metal completely protected from the elements.

Fabricated from JalZinc sheets, this new tile is typical of new uses for zinc coated sheets in construction and building fields. Superior quality and appear-

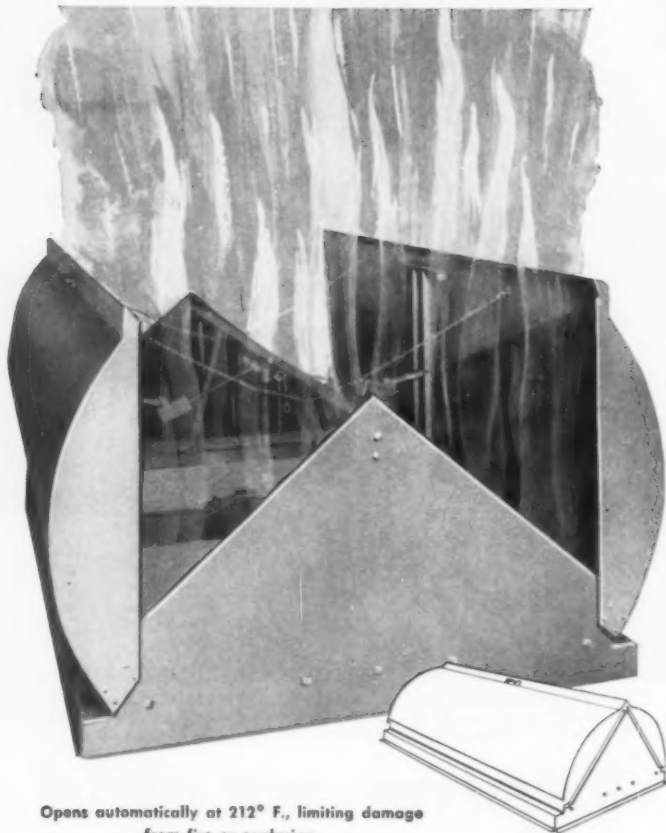
ance of JalZinc make it one of the most versatile building materials.

Investigate high quality JalZinc, available in cut lengths and coils, for your products and applications. Call your local distributor or write direct to Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pa.



Jones & Laughlin Steel Corporation

PITTSBURGH, PENNSYLVANIA



Opens automatically at 212° F., limiting damage from fire or explosion.

It's cheaper to burn up the sky than a plant!

When fire or explosion strikes a plant, Swartwout Pyrojectors open automatically . . . eject heat, flames, smoke through the roof instead of spreading them across the building. Pyrojector protection gives extra time for fire fighting equipment to arrive.

Pyrojectors are installed and operate entirely above roof level, yet extend only 28" above curb. Fusible link mechanism opens 28 square foot vent when temperature reaches 212° F. Can also be opened instantaneously with release chain or from roof. Well insulated and weather tight, Pyrojectors can be opened for extra ventilation in summer.

Give your clients the protection they need, and increase your own profits, too. Write for complete information about Pyrojectors today.

The Swartwout Co.
Ventilation Engineering
18615 Euclid Avenue Cleveland 12, Ohio

equipment developments (Continued)

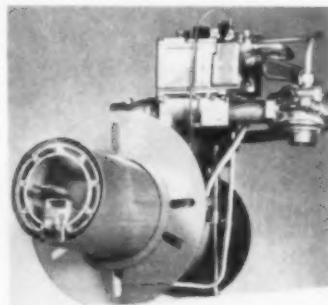
tubes; thick glass fiber blanket covers entire tank.

Air Cooled Units

MODELS PAC self-contained, and AC remote condenser type, air cooled air conditioners for residential and light commercial applications—*Thatcher Furnace Co., Dept. AA, Centre St., Garwood, N. J.* PAC units are in 2 and 3 ton capacities; AC models are in 3 and 5 tons. Both are available wired for single or three-phase circuits.

Power Gas Burners

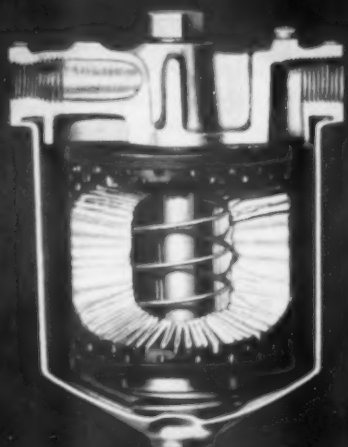
"TURBO-HEAT" line of power gas burners with ratings from 70,000 to 210,000 Btuh—*Barber Mfg. Co.,*



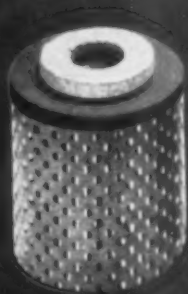
Dept. AA, 1052 E. 134th St., Cleveland 10, O. Model 210 has blast tube lengths from 6 through 15 in. Designed for conversion use, unit has eight 1 in. venturi tubes in arc inside rim of blast tube, designed to produce low port loading and hot, short flame. Axial flow fan reduces weight. Unit is 9½ in. from mounting flange to extreme projection of fan housing. Featured are standing pilot and adjustable mounting flange or stand.

Stainless Steel Electrodes

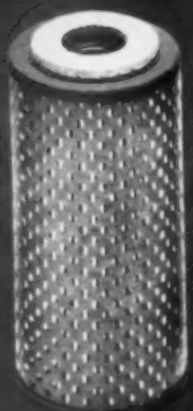
"EASYARC" 308, 316, and 347 stainless steel electrodes with powdered chromium-nickel coating—*Air Reduction Sales Co., Div. of Air Reduction Co., Inc., Dept. AA, 150 E. 42nd St., New York 17.* Unit is said to



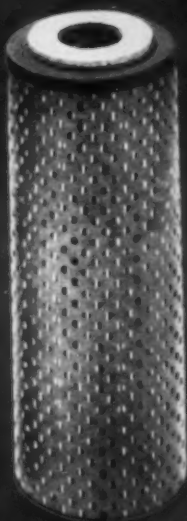
PF-2002 Filter
PF-200 Element



PF-63



PF-65



PF-67

CROSS REFERENCE CHART

APPLICANCE	DATE RATED	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT	REPLACEMENT ELEMENT
RESIDENTIAL OIL BURNER	6 and 10 G.P.H.	PF-200	PF-63	PF-65	PF-67				
	6 and 10 G.P.H.	PF-200	PF-63	PF-65	PF-67				
APPLIANCE	1/2 G.P.H.	PF-63				1/2 G.P.H.	1/2 G.P.H.		
	1/2 G.P.H.	PF-63				1/2 G.P.H.	1/2 G.P.H.		
TURBINE	14.75	PF-200				14.75	14.75	14.75	14.75
	14.75	PF-63				14.75	14.75	14.75	14.75
PURULATOR	PF-200	PF-200							
EXTRACTOR	14.75	PF-200				14.75	14.75	14.75	14.75
REF. CAPACITY	10 G.P.H.	PF-200				10 G.P.H.	10 G.P.H.	10 G.P.H.	10 G.P.H.
EXTRACTOR	10 G.P.H.	PF-200				10 G.P.H.	10 G.P.H.	10 G.P.H.	10 G.P.H.
EXTRACTOR	10 G.P.H.	PF-200				10 G.P.H.	10 G.P.H.	10 G.P.H.	10 G.P.H.

PURULATOR REFILL FEATURES . . . 0005 MICRON FILTRATION • ONE SIZE
FOR ANY CAPACITY • U.S. APPROVED FOR O.P.M. • FIVE TIMES MORE FILTERING SURFACE AREA

This handy guide shows you, instantly, the filter refills which may be used, interchangeably, in all leading filter units.

Filtration For Every Known Fluid

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PRODUCTS, INC.

Rahway, New Jersey and Toronto, Ontario, Canada

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THESE 4 PUROLATOR REFILLS SERVICE 98% OF ALL OIL BURNER FILTER INSTALLATIONS

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3. No channeling or "soft" spots.
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5. A guaranteed filtering capacity of over 100 gallons per hour U.L. approved.

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Dept. OB5-730 Purulator Products Co., Inc.
Rahway, New Jersey

Please send me _____ copies of your Oil Burner Filter Element Cross-Reference Chart.

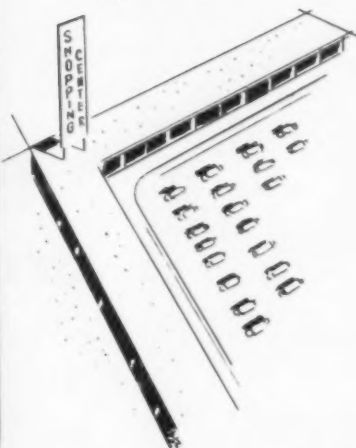
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Profits go up when you install SONOCO Sonoairduct because you save time, labor and money. No other duct installs faster or easier. 23 sizes—2" to 36" I. D., with the larger diameters ideal as supply and return lines for shopping centers, schools, churches and industrial heating and cooling systems.

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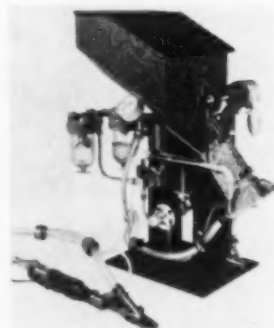
equipment developments

(Continued)

deposit homogeneous weld metal more easily and economically than previous models. Features claimed by the manufacturer are: more footage per electrode (less stub), well formed beads, smooth, uniform operation and good restriking characteristics.

Power Screw Driver

"JET-SETTER" unit with tapered plastic-covered head designed for automated driving of threaded fasteners in confined locations—Parker-Kalon Div., General American Transporta-



tion Corp., Dept. AA, Clifton, N. J. Driver head, which can be used at any angle to drive all types of standard commercial screws, also prevents marring. Head, adaptable to all types of power screw drivers, is controlled by mechanism which permits only one screw at a time to be fed from supply hopper.

Cooling Tower

"JET ACTION" glass fiber cooling tower with no moving parts, designed to eliminate rusting, rotting and deterioration problems—Koch Engineering Co., Inc., Dept. AA, 321 W. Douglas, Wichita, Kans. One piece tower is in 3, 5, 7½, 10, 15, 20 and 25 nominal ton sizes. Air moving and cooling are accomplished by system of water jet nozzles which spray downward from top of the tower. Units may be installed in any outdoor location regardless of prevailing wind direction or velocity. One

equipment developments
(Continued)

man is said to be able to lift and install 7½ ton model.

Soot Remover

"CLEAN RIGHT" soot remover in 8 oz cardboard and metal telescoping can—General Filters, Inc., Dept. AA, 43300 Grand River Ave., Novi, Mich. Opening and closing the two sections of the telescoping tube in short, rapid strokes forces soot remover out



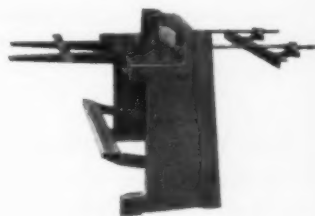
the end in fine spray which can be directed into combustion chambers, flues and chimneys where it is caught by draft and carried through system. Designed for use in all types of heating systems, compound burns soot without flash or intense heat. It is said to remove up to ½ in. layer of soot in 2 to 5 minutes.

Window Air Conditioner

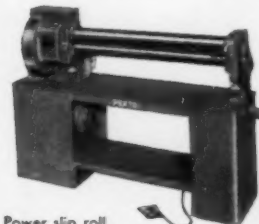
"MINUTE MOUNT" window air conditioner designed for installation in casement windows—Fedders-Quigan Corp., Dept. AA, 58-01 Grand Ave., Maspeth, N. Y. Featured in the ½ hp unit is "Safety Fast" mounting, designed to produce snug fit quickly. Unit is 14 × 10½ × 19 in., weighs 71 lb., fits 10⅝ × 14¼ in. and larger casement openings. Gasket seals all sides. Unit is equipped with built-in thermostat adjusted by single control knob. Unit has two single speed fan motors and two washable filters. Model number is 86CM-2.

PEXTO SHEET METAL MACHINERY

POWER AND MANUALLY OPERATED Squaring Shears • Ring and Circle Shears • Rotary Slitting Shears • Brakes and Folders • Flanging Machines • Slip Roll Forming Machines • Grooving Machines • Turning, Burring, Wiring Machines • Crimping and Beading Machines • Double Seaming Machines • Lever Shears and Punches



Foot squaring shear



Power slip roll forming machine



Ring and circle shear



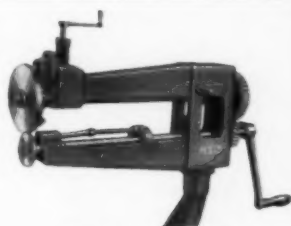
Slip roll forming machine



Adjustable bar folder



Combination brake and folder



Double seaming machine



Combination rotary machine

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equipment developments

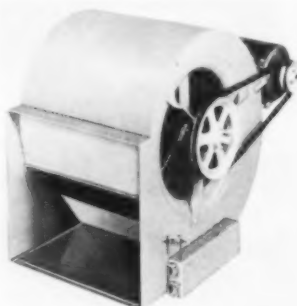
(Continued)

Power Stud Driver

MODEL GH-1 velocity-power driver for driving threaded or headed studs into concrete and steel—*Velocity Power Tool Co., Dept. AA, 201 N. Braddock Ave., Pittsburgh 8.* Blank cartridge powers unit, which features trigger activation, push-type replacement of barrels and shape fitted to hand contour. Changing barrels permits setting 1/2 or 3/8 in. studs, the company states.

Two-Volume Blower

"DU-AIR" blower which provides automatic two volume air delivery without pulley changes or adjustments—*Morrison Products, Inc., Dept. AA, 16816 Waterloo Rd.,*



Cleveland 10, O. On signal from room thermostat, blower provides proper amount of air for either heating or cooling. Automatic damper control mechanism is 1½ in. wide, is attached to blower housing. Unit works from room thermostat by switch or automatically.

Condensing Units

HERMETIC, THREE-PHASE condensing units and motor-compressors for air conditioning applications—*Bendix-Westinghouse Automotive Air Brake Co., Evansville Div., 950 E. Virginia St., Evansville 11, Ind.* Units are in 1, 1½ and 2 hp sizes. Units are designed for air conditioning applications in room units or central air conditioning systems, according to the manufacturer.

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You who are making your livelihood from warm air heating, residential air conditioning or sheet metal contracting can best use the practical helps published in *American Artisan* each month.

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Business

equipment developments

(Continued)

High Pressure Duct Sealer

"TUFF-BOND No. 12" high pressure duct sealer with synthetic rubber base for systems carrying air pressure of 5 to 40 lb—Goodloe E. Moore, Inc., Dept. AA, 2811 N. Vermilion St., Danville, Ill. Spread with brush or caulking gun, product skims over in 2-3 minutes, dries overnight. Designed for good adhesion to galvanized iron, its thermal limits are -30 to +200 F. Compound is said to resist gasoline, oil, water and aliphatic hydrocarbons; it is tan in color, has viscosity of heavy syrup, weighs about 9 lb per gal.

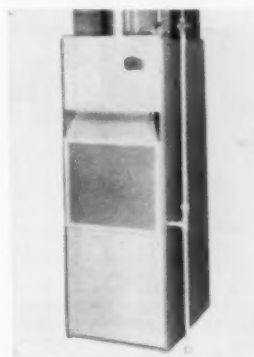
Slow Speed Punch Press

SLOW SPEED, 15 ton punch press designed for quiet operation and versatility—Kenco Mfg. Co., Dept. AA, 5211 Telegraph Rd., Los Angeles 22. Operational speeds can be changed. Drive mechanism employs combined energy of two flywheels; high friction, cog type dacton belts and large diameter final drive pulley transmit all generated power without gears. Designed for hand feeding, deep drawing, continuous operation and accurate feeding, press operates at 100 strokes per minute; changing single pulley wheel obtains speeds from 50 to 150 strokes per minute. Featured

are multiple rib frames, long ramways, ball-bearing operated jackshaft. Unit is in 6 and 15 in. deep throat models.

Gas-Fired Furnaces

"Lo-HIBOY" LINE of gas-fired furnaces in 90,000 to 150,000 Btu input—Toridheet Div., Cleveland Steel Products Corp., Dept. AA, 16025 Brookpark Rd.,



Cleveland 11, O. Optional matching return air cabinets for all sizes have built-in filter racks and filter access doors; return air can be admitted at top of the unit. Furnaces are shipped completely erected with burner and controls installed and prewired.



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WITH A CHECKUP**

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AND A CHECK

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CANCER
SOCIETY**



NEW LOW COST HIGH POWER VACUUM

New hidden, patented filter*

—3 times more power

The new Premier Model P-950 Vacuum, with the new hidden, non-clog filter, is the only true low cost furnace cleaner. The hidden filter gives you more usable capacity than other vacuums twice the size. You can clean 4-5 home furnaces without emptying. Yet it is so small it fits easily on the floor of your car. Over 2000 in use. Other models range from 16-48 qt. usable capacity, including 3 in 1 units: wet or dry, blower or shoulder vac.

*patent number 2814357



Model P-950

THE PREMIER COMPANY

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Attention: Gordon L. Bowman, V. P. & Sales Mgr.
Please rush me FREE details on Premier Heating,
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SAVE Money, Time & Trouble



Attic Unit Installation
Any unit raised in 45 minutes



Raises 100 to 4,000 lbs. up to 24 Ft.
Wonderful For Installing:

Attic Air Conditioners Transom Units Air Conditioners To 4,000 lbs. Unit Heaters

The Hastings HOIST-IT is easily portable. Two men can quickly set up and raise up to 4,000 lbs. to a height of from 8 ft. to 24 ft. This is a valuable and profitable tool for all Air Conditioning and Heating Contractors.



Installation 3,200 Lb. Unit
Two men erect in 1 hour



Write For Prices & Bulletin A-58 H
Hastings Air Control, Inc.
OMAHA 5, NEBRASKA

equipment developments (Continued)

Sheet Metal Brake

PORTABLE AND BENCH mounted 180 deg sheet metal brakes which form and bend sheet metal parts in 20 ga to 16 ga sheets from 26 to 36 in. wide—R. E. Smith Mfg. Co., Dept. AA, 1122 Elizabeth St., Waukegan,



Ill. Units will form 180 deg flanges in one continuous operation; bend complex forms; form around inside of an opening; double seam plenum caps; make radius bends to $1\frac{1}{2}$ in.; adjust for gage and bend angle, according to the company. Upper mandrel, which is the work hold-down and axis around which bend is made, is always on center line of hinges to assure true radius bends.

Gas-Fired Furnace

"COMET 572-76" GAS-FIRED furnace rated at 95,000 Btu input, which measures 25 in. square, 65 in. high—Thatcher Furnace Co., Dept. AA, Centre St., Garwood, N. J. Featured are single port upshot burner, knock-out return air openings on either side; filter access doors at either side, direct drive blower rated at 775 cfm, prewired controls, aluminum foil insulated cabinet. Unit is approved for manufactured, natural, mixed or propane gases. Controls include gas limit control and combination gas valve comprised of main valve, manual shutoff, pilot valve, automatic reset, built-in safety pilot and pressure regulator.

When that 'tough' customer says...



Just tell him...



There's no reason to lose sales because ordinary gas unit heaters can't meet strict requirements for quiet operation. Reznor dealers can offer

their customers a choice from two complete lines of blower type units... so quiet they are widely accepted for use in schools, libraries and hospitals.

The old Reznor line of US-B blower type heaters has just been redesigned to put all controls and connections inside the casing... this means improved appearance, and easier installation, too.

And there's a completely new line of Reznor blower models, shipped completely assembled with a blower enclosure which is a perfect match for the heater cabinet itself. They're tops when lowest possible noise level and best possible appearance are important factors in making the sale.

A complete selection of blower-type gas unit heaters is just one of the many reasons why alert plumbing and heating contractors have discovered that they can sell more and make more money when they sell Reznor. For details on how you can cash in, too, just give your nearby Reznor distributor a call.

REZNOR
WORLD'S LARGEST-SELLING DIRECT-FIRED
UNIT HEATERS

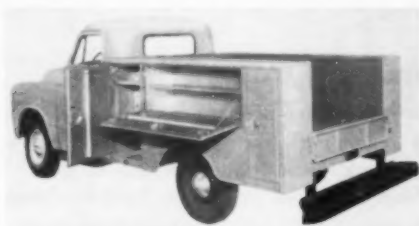
Reznor Manufacturing Co., 6 Union St., Mercer, Pa.

equipment developments

(Continued)

Service Truck Body

MODEL 900C SERVICE truck body with flush mounted, field-serviceable safety paddle locks on all doors—Service Body Div., Morrison Steel Products, Inc.,



Dept. AA, 601 Amherst St., Buffalo, N. Y. Major components are bolted for quick knock-down. Automotive grade steel, bonderized for corrosion resistance, is used throughout. Six compartments are sized to accommodate standardized packaging units; front vertical compartment shelves are adjustable; left-side horizontal compartments have full length tool trays with reinforced rolled edges; curb-side horizontal compartments have full length material trays with adjustable dividers. Doors have inner flat shell for unobstructed working space when horizontal doors are

open. Inner shell is welded to deeply embossed outer shell.

Textured Metals

LINE OF TEXTURED metals in seven new textures, designed for beauty as well as resistance to marks, dents, scuffs and fingerprints—Ardmore Products, Inc., Dept. AA, 169 Atlas Rd., Kenilworth, N. J. Textures are available in all metals up to 52 in. wide, in any finish. Some patterns are designed to add strength to metal, at the same time decreasing basic thickness and weight. Coils to 48 in., multiples, blanks or finished parts ready for assembly are furnished.

Fusible Link

MODEL HP FUSIBLE LINKS designed for use in conjunction with heating and air conditioning systems



and other applications—Hinden Products Co., Dept. AA, Box 4, Rockaway Park 94, N. Y. Links are manu-

**In the New York market
...where price is
an important factor ...
and rigid building
codes exist...
Empire Ventilators
outsell all others.**



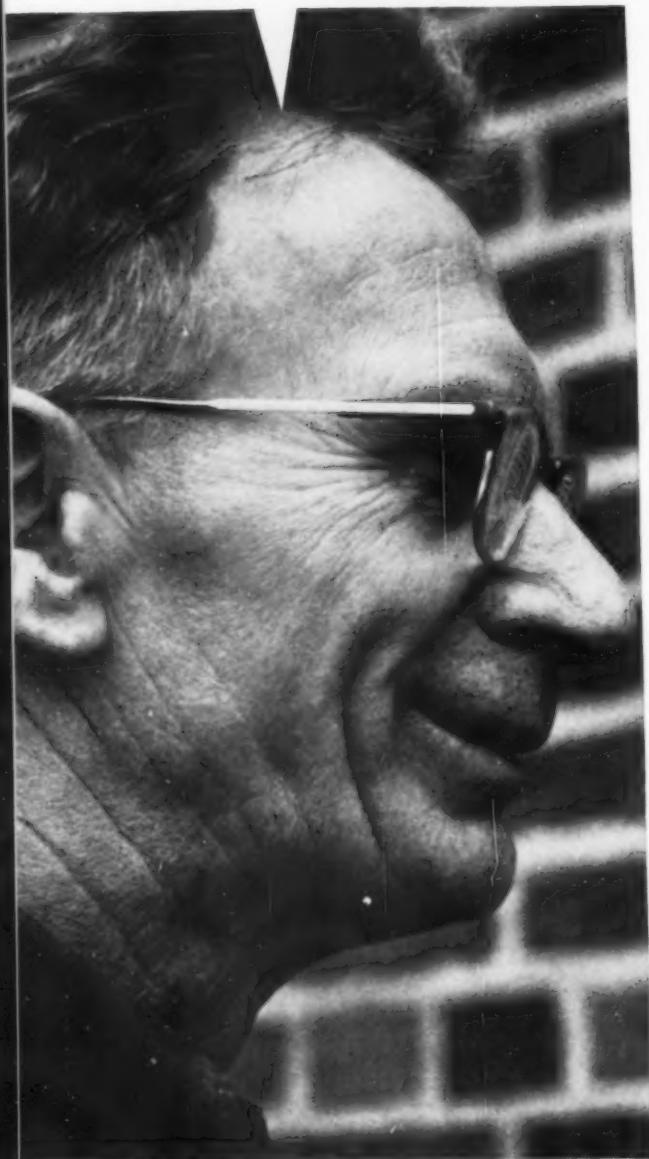
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"There's no springback with Inland TI-CO!"

says Emil Dahlin



"TI-CO sheets are soft enough to take intricate forming quickly and easily . . . they hammer flat and stay flat. Yet, they're strong enough to withstand roughest treatment in handling and installation."



—Emil Dahlin, Shop Foreman
Northern Metal & Roofing Co.
Green Bay, Wisconsin

Ask your distributor for the TI-CO
Brand . . . the galvanized sheet
tailor-made for sheet metal work.

INLAND STEEL COMPANY

30 W. Monroe St., Chicago 3, Illinois

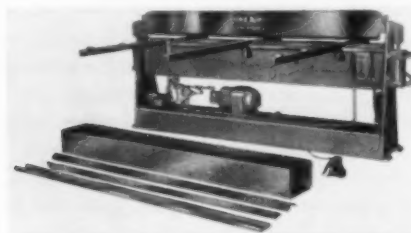
equipment developments

(Continued)

factured for release temperatures of 160, 212 and 360 F. Units can be readily installed, will withstand rough handling and corrosive influences, and break sharply at required temperature without hesitating or creeping, the company states. Links are solid brass, interlocking on a brass key and joined by soldering.

Bending Brake

"CHICAGO SPEED-BENDER" bending brake for heating and ventilating duct sections and similar long, light gage work, with bending length of 8 ft—Dreis & Krump Mfg. Co., Dept. AA, 7400 S. Loomis Blvd., Chicago 36. Unit has adjustable front gages and two



disappearing pin gages in lower die, which bend from notches in the sheet. Machine has removable 90 deg female die as well as a removable and adjustable ram which is an acute-angle male die with hardened bending edge, with a 2 in. stroke. Power operation is by two cylinders and balanced vane-type hydraulic pump driven by direct-connected 3 hp motor. Foot switch is movable.

Year 'Round Package Unit

"VORNADO COMFORT COMMANDER" reverse cycle package unit designed to maintain predetermined indoor temperatures regardless of outdoor temperature conditions—O. A. Sutton Corp., Dept. AA, 1812 W. Second St., Wichita 2, Kans. Units are in two sizes; smallest is rated at 2 hp for summer air conditioning, 23,500 Btu heating capacity; larger model has 3½ hp cooling capacity and delivers 45,750 Btu heating capacity. Both units have individual compressors which automatically defrost when necessary. Units can be installed in existing duct work. Heating capacity is said to be adequate where outside temperatures remain above 35 F. Strip heaters can be added for supplementary heat. Unit is designed to filter air and regulate humidity the year around.

Stud Welding Ferrule

CERAMIC FERRULE for welding studs to light gage galvanized steel without burning through or damaging

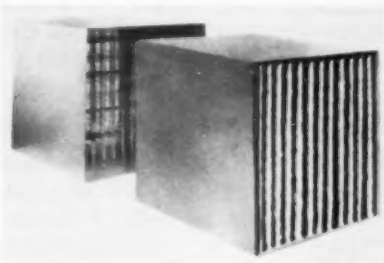
equipment developments

(Continued)

galvanized coating—*Shielded Stud Welding Co., Dept. AA, 1540 Seabright Ave., Long Beach 13, Calif.* Procedure is same for welding standard studs except that reverse polarity is used. Arc is initially made between pin and a copper alloy facing with a low melting point. Facing absorbs heat and prevents pin from burning through sheet. It melts and bonds to the sheet. Pins are low carbon steel, $\frac{1}{8}$ in. in diameter, in $\frac{3}{4}$ to 6 in. lengths; push-on clips are $1\frac{5}{16} \times 1\frac{5}{16}$ in.

High Velocity Filter

"AEROSOLVE" HIGH VELOCITY filter with 86 sq ft filter media area, 450 fpm face velocity and 1800 cfm capacity—*Cambridge Filter Corp., Dept. AA, 738 Erie Blvd., E., Syracuse 3, N. Y.* Unit consists of a cadmium plated steel frame which contains a com-



pletely assembled, replaceable filter cartridge. Three interchangeable cartridges with different media provide efficiencies of about 95, 85 or 35 percent, in tests with atmospheric dust, according to the manufacturer.

Air Cooled Condensers

TYPE BC AIR COOLED condensers with centrifugal fans for indoor applications—*Halstead & Mitchell, Dept. AA, Bessemer Bldg., Pittsburgh 22.* Centrifugal fans permit use of duct work and dual use of condensers: in summer, equipment room air can be exhausted outdoors; in winter, condenser heat can be utilized within the building to cut fuel costs. "Turbo-Flo" coils are featured. Condensers, rated from 3 tons up, are designed for ceiling mounting.

Blower Controls

TYPE AF FURNACE BLOWER controls with 3 or 7 in. probe which contains bimetal sensing element in exposed position in air stream—*Therm-O-Disc, Inc., Dept. AA, 127 Crouse St., Mansfield, O.* Snap-acting switch mechanism is designed for fast control. Unit is adjustable with range of 90 F. Maximum temperature to which control can be subjected is 300 F; factory differential is 25 F.

"Inland TI-CO® ends flaking headaches too!"

says Ted Klinger



"Since we started using Inland TI-CO we don't have to worry about the zinc coating flaking off when we're working the steel. This means less make-overs and better looking, longer lasting jobs."

—Ted C. Klinger, President
Associated Manufacturing Corp.
Kalamazoo, Michigan



Ask your distributor for the TI-CO
Brand . . . the galvanized sheet
tailor-made for sheet metal work.

INLAND STEEL COMPANY

30 W. Monroe St., Chicago 3, Illinois

new literature . . .

Duct Insulation

HOW, WHY, WHERE AND WHEN to insulate ducts for residential air conditioning is explained in an eight page technical bulletin. Answers are given to basic questions such as what thickness and kind of insulation to use and how to measure efficiency. Drawings show methods of applying insulation in both heating and cooling applications. Also discussed are vapor barriers, when they are necessary and types that are available. One section covers the use of duct liners for reducing noise in duct systems — *Gustin-Bacon Mfg. Co., Dept. AA, 210 W. 10th St., Kansas City, Mo.*

Dust Control

DUST CONTROL BULLETIN No. 276 contains drawings and photographs showing construction, dimensions and different arrangements of "Skimmer" centrifugal precipitators. The precipitator may be used for primary dust collectors in pneumatic conveying; primary dust collectors where atmospheric pollution will not be created; reduction of dust loading to more efficient final collectors; and reclamation of the large size fraction of the dust in a dry state. Models are available in 13 sizes capable of handling air volumes ranging from 600 to 40,000 cfm, according to the

company—*American Air Filter Co., Inc., Dept. PD-AA, 215 Central Ave., Louisville 8, Ky.*

Gas-Fired Furnace

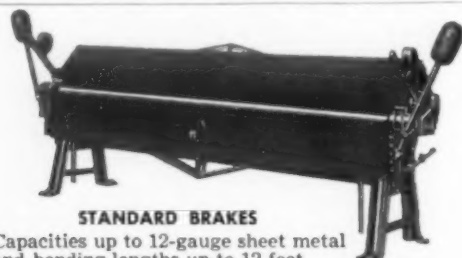
ILLUSTRATED BROCHURE describes "Atlas" model TAD-10 gas-fired warm air furnace. Only 10 in. in width, the furnace is available in capacities ranging from 30,000 to 50,000 Btuh, may be used with natural, manufactured or LP gas—*Tuck-Aire Furnace Co., Dept. AA, 2045 Evans Ave., San Francisco.*

Standard for Room Air Conditioners

ARI STANDARD for Room Air Conditioners 110-58 (35 cents), superseding Standard 110-56, contains revisions in temperature conditions for certain tests of room units. The tests for which conditions have been rewritten include: maximum operating conditions, low temperature operation, insulation efficiency, and condensation removal. None of these establish capacity ratings for room units, but do serve to establish minimum performance requirements—*Air-Conditioning and Refrigeration Institute, Dept. AA, 1346 Connecticut Ave., N. W., Washington 6, D. C.*

Vibration Mountings

HOW TO SELECT the proper type and size of vibration mountings for machinery is explained in a four page illustrated bulletin designated E6B. The booklet also



STANDARD BRAKES

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



FOLDER BRAKES

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



PORTABLE BRAKES

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

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Hand Operated BENDING BRAKES

One Man Operation • Quick Adjustment • Rugged Construction



Descriptive Literature on Request.

DREIS & KRUMP
MANUFACTURING COMPANY
7404 S. Loomis Boulevard, Chicago 36, Illinois

explains how to determine if steel springs, rubber or cork should be used as machine mountings. Eight case history photographs are included—*The Korfund Co., Inc., Dept. AA, 48-01A 32nd Pl., Long Island City 1, N. Y.*

Industrial Ventilation

THE INDUSTRIAL VENTILATION MANUAL, used as a basic text by many universities, contains all information needed for the complete design of industrial ventilation systems. The recommended ventilation practices are approved by federal, state and municipal government industrial hygiene departments. Included in the 1958 edition are 16 new hood design diagrams, revised hood design equations, new tables of air filter characteristics, and material on the control of radioactive and high toxicity contaminants. Copies are priced at \$4—*Committee on Industrial Ventilation, American Conference of Governmental Industrial Hygienists, Dept. AA, P. O. Box 453, Lansing 2, Mich.*

Copper Roofing, Drainage Equipment

COPPER ROOFING AND DRAINAGE products are described in a 28 page bulletin designed to help the sheet metal contractor select the proper materials for individual applications. Listed are items usually carried in stock as well as those that lend themselves to shop fabrication. Standard sizes and weights are given as well as information on special products available on request. Included are instructions for determining drainage requirements, information on proper flashing procedures, engineering data and similar material—*C. G. Hussey & Co., Dept. AA, 2850 Second Ave., Pittsburgh 19.*

Power Roof Ventilators

TYPE L-CRF airfoil centrifugal power roof ventilators are described in bulletin No. 2700 (eight pages). Details are given on backward curved airfoil blades designed to permit moving more air with less noise in both exhaust and supply applications. Capacity ratings, noise level classifications and motor selection specifications are included—*Hlg Electric Ventilating Co., Dept. AA, 2850 N. Pulaski Rd., Chicago 41.*

Non-Metallic Duct

SIX PAGE ILLUSTRATED FOLDER (TR-210A) shows how to save installation time with "Transite" air duct. Illustrations show methods of joining as well as factory assembled and segmental fittings available. Diameters and weights are listed — *Johns-Manville, Dept. AA, 22 E. 40th St., New York 16.*

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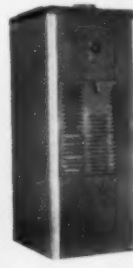


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Meyer Low-Boy
gas or oil



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P-K SCREWNAILS won't bend or break — won't back out or loosen even under vibration. The hardened spiral threads grip the metal then worm their way into the wood just like a screw. You get the combined advantages of nail-driving speed plus screw-holding power — over 4 times the holding power of ordinary nails! You'll use fewer nails on the job — save time and money. P-K SCREWNAILS come in a wide variety of sizes and head styles.

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PARKER-KALON DIVISION, General American Transportation Corporation
 Peekay Drive, Clifton, New Jersey

new literature

(Continued)

NWAHACA Technical Data Book

THE FIRST EDITION of the National Warm Air Heating and Air Conditioning Association's "Technical Data Book" (\$3.00) contains data on friction losses in straight ducts, pressure losses in elbows, pressure losses in take-off fittings and boot-diffuser combinations, and heat transfer in ducts. It explains how this information can be applied in setting up a design procedure for any ducted air system, either heating or cooling.

Included is a friction chart which has been developed around studies sponsored by the association at the University of Minnesota. This chart gives pressure loss curves for ducts ranging from 3½ to 8 in. in diameter. On the reverse side of the chart are shown curves of air temperature drop in uninsulated heating ducts and air temperature rise in insulated cooling ducts.

The information presented in the "Technical Data Book" is based on research at the University of Minnesota and the University of Illinois. Additional data will be added to the book as it is developed through research studies and test work — *National Warm Air Heating and Air Conditioning Association, Dept. AA, 640 Engineers Bldg., Cleveland 14.*

Registers and Grilles

DATA TO AID IN THE SELECTION of grilles and registers is presented in catalog No. 1-58 (54 pages). New products illustrated include "Airline" grilles and registers, curved louvers, and grilles with louvers pivoted at the front. Included are 40 photographs and 35 drawings — *Waterloo Register Co., Inc., Dept. AA, P. O. Box 72, Waterloo, Ia.*

Extension Shaft Fans

BULLETIN 640-A covers axial flow extension shaft fans designed for use in applications where the fan motor must be kept out of the air stream, such as exhausting contaminated fumes from hoods or tanks. For corrosive exhaust, special corrosion resistant coatings for the fan and the extension tube are factory applied when specified. Available in nine diameters to 60 in., the fans have certified air deliveries to 79,000 cfm, according to the company. Extension shaft lengths range from 16 to 66 in. — *Propellair Div. of Robbins & Myers, Inc., 1345 Lagonda Ave., Springfield 99, O.*

Stainless Steel Curtain Walls

"DATA ON STAINLESS STEEL Curtain Walls," a recent study at Princeton University's School of Architecture, is part of a research project commissioned by the Committee of Stainless Steel Producers, American Iron and Steel Institute. A table gives technical data on

new literature

(Continued)

stainless steel used in recently completed buildings. Under architectural classifications such as "Stainless Steel Grid," "Commercial Type Curtain Panel," "Industrial Type Stainless Panel," the chart lists representative buildings and gives dimensions, gage, steel type number and finish of stainless steel components used as well as methods of insulation, sealing, framing and fastening. Photographs and architectural drawings illustrate curtain wall panel details, methods of attachment, insulation and weatherseal systems — *Committee of Stainless Steel Producers, American Iron and Steel Institute, Dept. AA, 150 E. 42nd St., New York 17.*

Electrode Manual

HOW TO SELECT the most efficient electrode for any particular welding job is the subject of a 12 page illustrated brochure (7000.1). Application and general information is given for "Fast Freeze," "Fast Fill," and "Fill Freeze" types. Also described are electrodes for use on hard-to-weld steels. The back of the bulletin is a wall chart containing frequently used information about electrodes such as coating color, identification marking, sizes and current ranges—*The Lincoln Electric Co., Dept. AA, Cleveland 17.*

Prefabricated Duct and Fitting

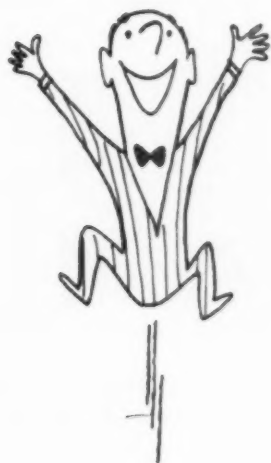
FORTY PAGE CATALOG describes Seal-Tite (T/M) prefabricated duct, pipe and fittings for heating and cooling designed to provide a dust-tight and leakproof air distribution system. Each fitting is identified with part number, size, shipping weight, list price and complete specifications. Included are charts, diagrams and engineering data — *The Williamson Co., Dept. AA, 3500 Madison Rd., Cincinnati 9.*

Home Air Conditioning

ILLUSTRATED BULLETIN for consumer distribution describes advantages of "Vornado" home air conditioning, including less housework, better health, more restful sleep, etc. Included is a cutaway view of a house showing a typical installation. Also illustrated are various types of commercial installations—*The O. A. Sutton Corp., Inc., Dept. AA, 1812 W. Second St., Wichita 2, Kans.*

Resistance Welding Machines

BULLETIN No. 341 on resistance welding machines features pictures showing how resistance welding techniques are adapted to meet unusual fabricating requirements. Special fabricating problems are solved in one of two ways: 1) by adapting a standard welder



They go UP
SO E-A-S-Y!

That's because

**GALVAN
ELBOWS**

... SLIP
TOGETHER



- Saves Time!
- Fit All
Standard PIPES
PERFECTLY!

GALVAN
MANUFACTURING COMPANY
NEW ALBANY, INDIANA

new literature

(Continued)

to the specialized requirements of the production process; 2) by developing a "single purpose" welder, designed and engineered to meet the needs of the process—Sciaky Bros., Inc., Dept. AA, 4915 W. 67th St., Chicago.

Hand Tools

BOOKLET describes how to use hand tools and provides basic information on their proper selection, care and maintenance. Fifty-eight how-to-do-it photographs show 30 different tools in use. Copies are priced at 10 cents—Crescent Tool Co., Dept. AA, 230 Harrison St., Jamestown, N. Y.

Ventilating Equipment

BULLETIN 8927 (48 pages) illustrates and describes redesigned line of heating and ventilating units. The fan section is described in detail, with illustrations showing housing, fan wheel, fan shaft, hub assembly and other parts. Included are fan capacity tables, air friction tables, recommended selection procedures, installation drawings and dimensional information—American Blower Div. of American-Standard, Dept. AA, Detroit 32.

Air Velocity Meter

POCKET SIZE DATA BOOK describes procedures for testing and balancing air diffusers with an "Alnor Velometer." Engineering data is given on specific makes of diffusers together with instructions for measuring air delivery of various types and sizes—Illinois Testing Laboratories, Inc., Dept. AA, 420 N. LaSalle St., Chicago 10.

Gutter with Water Backup Guard

DATA SHEET covers "Guard Gutter" featuring high back edge and protective top flange designed to prevent backing up of rain water and snow. Front edge of the flange has perforations so that a wire mesh protector may be added to keep leaves and other debris out of the gutter—Arthur E. Wolf, Dept. AA, 15023 Merimeade Dr., Cleveland 11.

Three-Phase Motor Protector

FIFTEEN QUESTIONS about built-in, 3-phase motor protectors such as, "Do all 3-phase motors need protection?" and "Against what overtemperature conditions in a 3-phase motor is a built-in protector effective?" are answered in a four page illustrated brochure. Ask for bulletin PR-1243—Metals & Controls Corp., Spencer Thermostat Div., Dept. AA, 34 Forest St., Attleboro, Mass.

The new A&A "AIR-MASTER" is ideal for home modernization jobs!

The most flexible air register — diffuser to reach the market in years! Only one unit to stock and install for both heating and air conditioning. An ideal replacement for registers in older homes where air conditioning systems are being added. Installs on wall or baseboard on inside or outside walls.

The A&A "AIR-MASTER" diffuses evenly . . . anywhere! Effortless change from summer cooling to winter heating. Air flow is adjustable by lever from 35° up to 35° down. Vertical fins are factory set to diffuse air to both sides 22 degrees, half right and half left . . . and the settings can be changed.

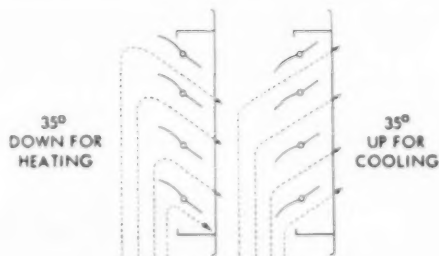
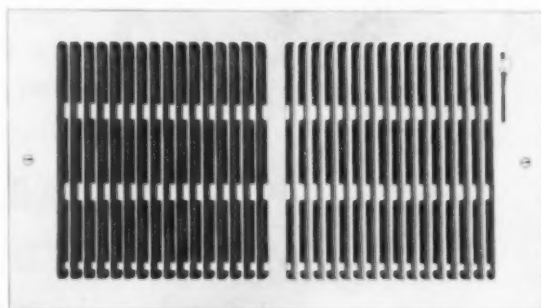
Write for details on the M-series "AIR-MASTER"

We make a complete line of registers, grilles and diffusers for all types of heating and air-conditioning installations. Write today for your copy of our new catalog 58, just off the press.



The **A & A REGISTER COMPANY**

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we hear that...

► THE BOARD OF DIRECTORS of Worthington Corp. has elected Frank J. Nunlist group vice president of the firm's Air Conditioning & Refrigeration and



Frank J. Nunlist

Mueller Climatrol divisions. Mr. Nunlist became associated with Worthington in 1951 as vice president of sales of the L. J. Mueller Furnace Co., which became a division of Worthington in that year. He has been with the Mueller organization since 1941 and, since August 1956, has been executive vice president of the division. In his new position he will be responsible for coordinating the Worthington firm's activities in the field of heating and cooling equipment. In addition to its manufacturing operations in Milwaukee, the Mueller Climatrol Div. operates plant facilities at Alhambra, Calif. The Air Conditioning & Refrigeration Div. has plant facilities at East Orange, N. J.; Holyoke, Mass.; and Decatur, Ala. Mr. Nunlist will be located at company headquarters in Harrison, N. J.

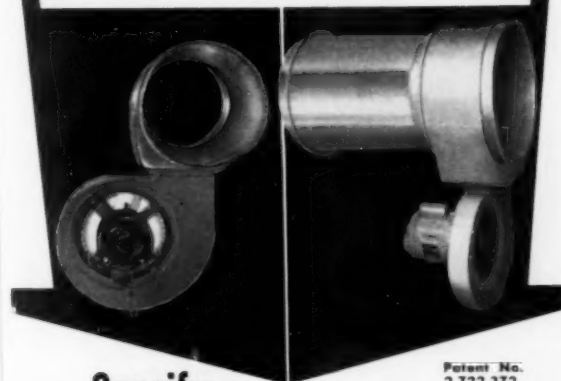
► THE U. S. STEEL SUPPLY DIV. of United States Steel Corp. recently opened a steel warehousing facility in Birmingham, Ala. The division now has warehouses or sales offices in 17 states.

► THE SIMPSON ELECTRIC CO. has produced a color slide presentation designed to help service men use their test equipment to greater advantage in the shop or while on service calls. The slides show various test equipment in use on different pieces of heating and air conditioning equipment while a sound strip gives a running narrative of the specific problem and its solution. Arrangements for presentation of the program may be made through any of the company's area representatives or through the Chicago office.

► CONTROLS CO. OF AMERICA has purchased laboratory equipment, materials, designs, products and U. S. and foreign patents from Breese Burners, Inc. The Breese development engineering operation at Santa Fe, N. M. and sales offices at Columbus, O. will comprise a wholly owned subsidiary but will be operated independently of Controls Co. and will retain the Breese name, according to Louis Putze, president of Controls Co.

► NATIONAL SALES HEADQUARTERS for the Olin Aluminum Div., Olin Mathieson Chemical Corp., have been moved to the newly completed office building at 400 Park Ave., New York City.

FOR LOW COST HEATING PLANT POWER-DRAFT AND INDUSTRIAL EXHAUSTING



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2,722,372.
Other Patents
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Quickdraft

★ NO MOTORS, FANS OR BEARINGS

IN EXHAUST LINE ★ NEEDS NO STACKS

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PRESSURE UP TO 20 INCHES

FOR HEATING PLANTS AND INCINERATORS, Quickdraft provides constant draft for efficient and economical combustion. It eliminates pulsating or chattering, puffing, smoking and sooting. Costly, tall and unsightly stacks are unnecessary.

FOR INDUSTRY, Quickdraft offers up to 20 inches static pressure for exhausting corrosive gases, abrasives and paint spray . . . moving fine bulk materials and wastes.

FOR MOVING AIR . . . in or out of building through ducts . . . Quickdraft is outstanding.

IMPORTANT NOTICE

For withstanding corrosive gases, all Quickdraft units are available in standard acid resisting vitreous enamel, No. 316 Stainless Steel, rigid plastics (P.V.C.) and with plastic and Fibreglas coatings.

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DATA on your application . . . today.

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"SPRING SALES ROUNDUP" champion for 1957, Don Boyer, shows Tom Williams how he plans to win the 1958 "Roundup" by using American Artisan check-lists

► HALL-NEAL FURNACE CO.'s annual sales conference was attended by 128 dealer-contractors and 32 wives. The meeting was held in Indianapolis Mar. 25-26. One of the highlights of the program was the announcement that the 1958 "Spring Sales Roundup" would begin April 1 and run through May 31. Winners of the sales contest will earn their rating through

actual installations rather than purchases for inventory and future sales.

How to locate prospects through the use of check-lists was described by Clyde M. Barnes, editor, American Artisan, who explained how the check-list introduced in the March American Artisan could be used to cultivate prospects for both heating and summer air conditioning installations. The check-lists, available at American Artisan, can be used as direct mail pieces, handouts at home shows and fairs, and for door-to-door canvassing. They may be distributed by service men, left on front door knobs by school boys or offered through newspaper and radio advertising. Mr. Barnes pointed out how the check-lists aid in preparing a prospect for the higher price asked for a quality system engineered and installed to provide maximum comfort the year 'round.

► RICHARD D. BRAUN, who has been sales manager and production manager for the Flagler Corp. since 1952, has been elected a vice president by the firm's board of directors.

► THE NELSON STUD WELDING DIV. of Gregory Industries, Inc. demonstrated a new method of end welding insulation fastener studs to thin gage sheet metal ducts at the recent American Welding Society Exhibition. According to the company, the new method permits welding of studs at a rate of 200 to 400 per hr.

"Exclusively Yours"

Protected Territories

The Patented OCTAGON Radiator

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FURNACE & APPLIANCE MFG. CO.
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**41 Models of
Gas • Oil • Coal-Fired
WARM AIR CONDITIONERS**

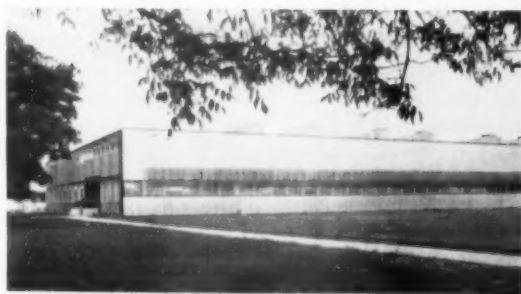
KALAMAZOO
Since 1901 — The Finest in Heating Equipment

Cleanliness • Comfort • Safety

"Exclusively yours... all the fine features that go into every Kalamazoo Furnace to make them the best buy, by far, on the market today!"

It will pay you to investigate this profit-packed story. Write for information on available territories.

**Phone • Wire • Write
TODAY!**



NEW TORRINGTON PLANT in Van Nuys, Calif. features side walls consisting of removable aluminum panels so that space can be expanded quickly and with no loss of building material

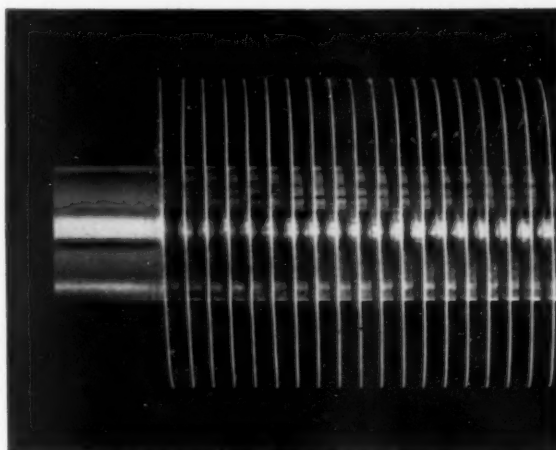
► **THE TORRINGTON MFG. Co.**'s western division recently opened a 50,000 sq ft plant in Van Nuys, Calif. The new plant provides twice the production capacity of the firm's former western plant, according to M. A. Joulsohn, vice president and general manager of the western division. The building is designed to provide maximum flexibility in both production and office space and to permit rapid, low-cost outward expansion.

► **CHASE BRASS & COPPER Co.** has joined the Home Improvement Council, a national organization formed to promote the modernization and improvement of America's homes. A. R. Armstrong, manager of tube sales, says "warm air heating dealer-contractors have a tremendous stake in the success of the Home Improvement Council. We feel that it is our obligation as manufacturers to support activities designed to increase the dealer-contractor's potential sales market."

► **SERVICE RECOGNITION** dinner parties for employees who have been with the company 25 years or more are being given by Joseph T. Ryerson & Son, Inc., in a number of cities over the country in which its plants are located. Approximately 6 percent of all present employees are in the 25 year and over group, according to the company. Of these 265 employees, 38 have over 40 years of service each to their credit.

► **A. M. CASTLE & Co.,** Chicago has been appointed a national distributor for Olin aluminum by Olin Mathieson Chemical Corp. The Castle firm will distribute all the Mathieson company's industrial products including sheet, plate, extrusions, rod and bar.

► **A 20 MINUTE SOUND AND COLOR FILM** produced by the Lau Blower Co. shows how the company's various types and sizes of blowers are manufactured. W. W. Morrissey, blower sales manager, says the film was produced to acquaint both customers and trade associations in the air conditioning and heating fields with



AEROFIN **Smooth-Fin Coils** **offer you**

Greater Heat Transfer
per sq. ft. of face area

Lower Airway
Resistance
—less power per c.f.m.

Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



Write for Bulletin S-55

AEROFIN **CORPORATION**

101 Greenway Ave., Syracuse 3, N.Y.

Aerofin is sold only by manufacturers of fan system apparatus. List on request.



**OVER 400
BURNERS
REPLACED WITH
THIS
FUEL
SAVER**



LO-BLAST ECONOMITE

POWER GAS CONVERSION BURNER

In the small home development of 472 homes in Marquette Heights, near Peoria, Illinois, illustrated above, Lo-BLAST Economite Power Gas Burners replaced oil burners originally installed. The reasons are evident when the trouble-free performance and economy of the Economite are considered.

Power burner design assures perfect combustion, regardless of natural draft conditions—*saves an average of 10% in fuel*—ideal for down-draft heating plants. The Economite burns so smoothly you can't tell when it's running.

Every Economite is factory-tested on gas and shipped assembled, fully equipped with fool-proof safety.

Lo-BLAST Power Gas Burners are available in capacities from 70,000 to 20,000,000 BTU input. Write for literature.

**MID-CONTINENT
METAL PRODUCTS CO.**
1960 N. Clybourn Ave., Chicago 14, Ill.

we hear that

(Continued)

the extensive manufacturing process necessary to produce a modern blower. Called "The Inside Story," the film shows the step-by-step process of converting raw steel into blower wheels and complete blower assemblies. It is available without charge to qualified associations and companies.

► **THE BOSTON SCHOOL** of Advanced Oil Heat Training has conducted six three-day courses since the middle of March and has scheduled two other conferences. The course is designed to teach experienced oil burner men the necessary specialized procedures required to obtain the highest possible efficiency from any installation of a pressure atomizing oil burner. Subjects covered are: 1) Proper Firing Rates; 2) Combustion Chamber Construction; 3) Baffling; 4) Draft Control; 5) Pulsation; 6) Mating of Air and Oil Patterns; and 7) Nozzle Application Test.

The two schools yet to be held will be in Chicago, May 20-22 and in Vineland, N. J., June 4-6. Those interested in attending may obtain further information from the sponsors: Chicago school, L. E. Schulein, 336 N. Central Ave.; New Jersey school, Thomas W. Wallace, President, Wallace Supply Co., Vineland, N. J.



M. F. Beisber

► **M. F. BEISBER** has been appointed to head the Manning-Bowman Div. of McGraw-Edison Co. Mr. Beisber formerly was director of market research and distribution for McGraw-Edison's Line Material Industries. He also heads the Loner-gan Coolerator Div.

► **THE AIR MOVING** and Conditioning Association has elected Jenn-Air Products Co. and E. Van Noorden Co. to membership in the organization. Both companies are manufacturers of power roof ventilators. According to AMCA executive vice president Marshall Allen, "Membership in AMCA gives manufacturers access to a great deal of technical information as well as monthly reported sales and shipment figures of members' products. It also gives each member company participation in development of standards and the opportunity to join in research on current problems of the industry."

► **ALLIS-CHALMERS MFG. CO.** recently completed a seven story office building located directly across the street from its main office in West Allis, Wis. The new building contains 110,000 sq ft of floor space.



A REPRODUCTION of the furnace on display at Brussels World's Fair is shown to John Robertson (left), president, National Heating & Airconditioning Wholesalers, Inc., by Carl W. Millsom, sales manager, Perfection Industries Div. of Hupp Corp.

► PERFECTION INDUSTRIES' gas-fired furnaces and year 'round units will be displayed in the United States booth at the Brussels World's Fair. The units are designed to blend with modern decor, may be built in or flush mounted anywhere in the home. Duct work, piping and wiring can be hidden. According to C. W. Millsom, vice president, sales and advertising, the Perfection units were selected by the government as "examples of residential heating and cooling trends in the United States."

► RAYMOND S. DOHERTY has been elected vice president of the A. W. Cash Valve Mfg. Corp. For the past nine years, Mr. Doherty has been engaged in sales management work for the National-U.S. Radiator Corp.

► UTILITY APPLIANCE CORP. offers a new "Gaffers & Sattler" financing plan. Under the plan, according to the company, no down payment is required of the consumer on water heaters, furnaces and air conditioning units.

The company was recently granted a U.S. patent on a gas furnace heat exchanger with an expansion section designed to dissipate stresses due to heat expansion and insure silent operation.

► KASIMIR OGANOWSKI, associate director of research at Armco Steel Corp.'s research laboratories recently received the distinguished service award of the Galvanizers' Committee of the American Zinc Institute. Mr. Oganowski, like T. S. Sendzimir and B. Finkbone, Armco researchers who received the award in previous years, played an important role in the development of the continuous process of applying molten zinc to sheet steel.

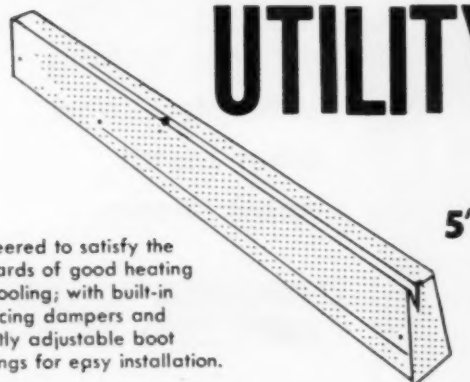
► FULTON SYLPHON DIV. of Robertshaw-Fulton Controls Co. has opened a product development laboratory in Knoxville, Tenn.

BEAUTY



Styled to fit snugly into the baseboard with a minimum of protrusion, leaving wall and floor space unobstructed; with a neutral finish for painting to harmonize with or complement the color scheme of the room. Sturdily built of 20 gauge steel.

UTILITY



Engineered to satisfy the standards of good heating and cooling; with built-in balancing dampers and instantly adjustable boot openings for easy installation.

PROFIT



Three sizes: 3', 5', 8' with corner sections and joiner strips.

FAN-AIR® BASEBOARD DIFFUSERS

Quality is always in good taste, and quality products bring dependable profits.

Ask your jobber for the details, or write for literature

FAN-AIR® COMPANY

DOWAGIAC MICHIGAN

NATIONAL LOCK CONTINUOUS HINGES

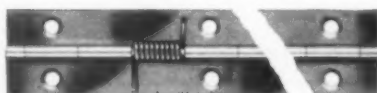
for all types
of heating and
air conditioning
cabinets... and
other metal
applications



EQUAL WINGS — STAGGERED HOLES



UNEQUAL WINGS — PARALLEL HOLES
(ON SPECIAL ORDER)



SPRING HINGES

Available in steel, brass, stainless steel and aluminum, National Lock hinges are offered with equal and unequal wings... $\frac{3}{4}$ " to $3\frac{1}{2}$ " widths... up to 97" lengths... with and without holes. Write for complete information.

HANDLES • PULLS • LATCHES
CATCHES • HINGES • SCREWS



NATIONAL LOCK COMPANY
Rockford, Illinois

wholesaler doings...



MARKET DEVELOPMENT AWARD is made to Tommy Thompson, Atlanta wholesaler, by Weathertron department supervisor Paul M. Hooven. J. R. Crim (right), field representative, adds his congratulations

► WEATHERTRON DEPARTMENT, General Electric Co., has given recognition to ten distributors in the United States who showed outstanding leadership in the development of heat pump sales in their respective market areas. The awards were based upon the wholesalers' ability during 1957 to exceed the heat pump quota assigned at the beginning of the year. Similar awards will be made next year and will be based upon new quotas made January 1, 1958. Among the top ten wholesalers winning the bronze plaque award was Tommy Thompson, The Thompson Co., Atlanta.

► ST. JOSEPH FURNACE & SUPPLY CO., 615 Seventh St., St. Joseph, Mo. and Chatham Supply Co., 421 Southwest Blvd., Kansas City, Mo., both owned and operated by W. E. Chatham, have been named wholesalers of "Gaffers & Sattler" heating and air conditioning products. Territory to be served includes parts of Kansas, Missouri and Iowa. L. E. Burton of Kansas City, former district sales manager for Armstrong Furnace Co., is manager of the heating and air conditioning division of both firms.

► APPARATUS DISTRIBUTORS, INC., GE distributor in the metropolitan New York area, is conducting an intensive training course for dealer-contractors on the sale and servicing of residential heating and cooling equipment. Manny Kern, sales manager for Apparatus, is being assisted in the school program by Robert Sestero of the New York GE regional office. To keep classes as small as possible for better learning, Mr. Kern divided the New York territory into three areas. Nassau and Suffolk county dealer-contractors meet Tuesdays, and those from Westchester and the Bronx on Wednesdays. Classes are about three hours long.

wholesaler doings

(Continued)

► **VORYS BROS., INC.**, Columbus wholesaler, recently sponsored a sheet metal machinery and metal show, the first to be held in the central Ohio area. Over 350 contractor-dealers visited the display halls to see equipment exhibited by leading manufacturers of sheet metal machinery. A feature of the exhibit was Vorys Bros.' "Used Tools" booth. It was explained that the company takes trade-ins on new machinery, thus occasionally has completely overhauled used tools to offer customers. Visitors were invited to register their requirements, and when the desired tool becomes available they will be notified by the company. At another booth, an official of the Ohio National Bank explained to interested customers the details of buying machinery on a "pay-as-you-earn" plan.

► **H. J. SMYTHE** has been named sales manager for The Irwin Steel Co., Canton, Ohio, warm air heating and sheet metal wholesalers. Mr. Smythe was previously associated with Irwin Steel Fabricating Div., Canton, and before that was with E. W. Bliss Co.

► **AIRMEX WHOLESALE CO.**, 1217 W. Jefferson St., Phoenix, Ariz. will handle distribution of "Atlas" furnaces and air conditioners in the state of Arizona.

► **TOLEDO PIPE AND SUPPLY CO.**, Toledo will represent Waste King Corp. in parts of Ohio and Michigan, handling the sale of gas-fired incinerators.



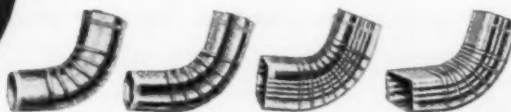
"SAM THE TINKNOCKER" does everything a good dealer-contractor should not do. Here he demonstrates how not to make a good impression on a prospective customer

► **OVER 180 DEALERS** and manufacturers' representatives attended the sales meeting recently held by the Grand Furnace Co., Grand Rapids, Mich. wholesaler. Featured speaker was "Sam the Tinknocker," whose negative approach to selling and mer-



Cincinnati Elbows really get around

For the right angle on the right connector, specify Cincinnati Elbows. Precision shaped and tapered on fully automatic machinery for positive uniformity, Cincinnati Elbows slip together effortlessly for a sure, tight fit. Once installed, they look better and last longer, because they're hot-dipped *after* formation for a smooth, rust-resistant finish. So, next time, don't take chances. Order easy-fitting Cincinnati Elbows. Available in all sizes, angles and gauges in copper, aluminum, stainless or galvanized steel. Ask your jobber today.



CININNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio



wholesaler doings

(Continued)

chandising, public relations, etc. effectively pointed up mistakes in those areas frequently made by dealer-contractors.



MORE THAN 150 DISTRIBUTORS attended "Ye Annual Jobber Meeting" held recently by the Williamson Co.

▶ EXECUTIVES OF DISTRIBUTOR ORGANIZATIONS in all parts of the country met recently in Cincinnati for the annual jobber meeting of the Williamson Co. G. Denges and W. H. Calahan introduced new cooling

equipment as well as the firm's new "Seal-Tite" special series gas and oil furnaces. Featured at the meeting was a presentation called "Verily, This Is Your Life," a series of true life distributor success stories re-enacted by the actual participants. Another skit presented by J. P. Field demonstrated the latest types of "Seal-Tite" duct and fittings.

▶ P. J. MORAHAN CO. will cover the Philadelphia area for Gibson Refrigerator Co. Mr. Morahan was formerly district sales manager for the Gibson firm in Philadelphia.

▶ BIGGS PUMP & SUPPLY, INC. will handle distribution of Waste King incinerators in parts of Illinois and Indiana.

▶ IN A RECENT ADDRESS, R. E. Sage, general sales manager, A. Y. McDonald Mfg. Co., stated that distribution channels must be clearly stated by manufacturer, wholesaler and dealer. "Manufacturers must make a stand and declare themselves as to what method of distribution they are going to use in the tremendous growth years ahead," he said. "If they are going to sell direct, then they must declare that position. If they decide to sell through dealer-contractors or wholesalers, then that position must be declared. However, they cannot expect to have a deviation from their

PRINGLE POWER VACUUM

The Best in Power Vacuum Cleaning Equipment for a Low, Low Price

No stationary motor, low maintenance, ample, safe and convenient space for accessories, simple to dump with cleanout doors on both sides, quickly set up telescoping aluminum pipe and light weight flexible hose may be unloaded or loaded from either side or back, bags appear automatically, space required on the job no larger than a car's.

Only one man needed for any size job
Write Today for Particulars

R. A. PRINGLE & SON

508 CATHERINE STREET
WALLA WALLA, WASHINGTON



◀ ◀ ◀
NEAT & COMPACT
BAGS CONCEALED
ROLL TOP TARP
THREE LARGE
UTILITY
STORAGE
COMPARTMENTS

▶ ▶ ▶
HOOK-UP
EITHER SIDE —
UP OR DOWN
60 cubic foot
DIRT CAPACITY
13" FAN INTAKE
POWERFUL



normal channel of distribution of over 3 percent and have their sales program effective.

"If a manufacturer will not come out in the open with his declared policy, it is up to the dealer-contractor or wholesaler to demand these policies be stated in writing. Similarly, if a wholesaler or dealer-contractor will not commit himself as to his purchasing policy, it is certainly only right that the manufacturer be given the opportunity to request a policy statement from such reseller in writing.

"As competition increases, management must be required to take a firm and definite stand, whether it be at the manufacturing, wholesaling or dealer-contractor level."

► **RADIO CITY DISTRIBUTING CO.**, Dallas, has been appointed a wholesaler of Fedders-Quigan air conditioners and dehumidifiers in the northeast part of Texas.

► **HEATING WHOLESALERS CO.**, 107 S. W. Second Ave., Des Moines, Ia. has been appointed a distributor of Ruud automatic gas water heaters in Iowa and South Dakota. Heating Wholesalers has headquarters in Des Moines and maintains branches in Waterloo and Sioux City.

► **THE ARMSTRONG HEATING SUPPLY CO.**, Chicago, recently conducted a series of "Crossroad Meetings" for dealer-contractors in the area. Subjects covered included "What the Wholesaler Can Do for the Dealer," "A look at the Market," "How to Develop Profit," and "Closing the Sale."

► **THE DIXON CAPERTON Air Conditioning Co.**, Tyler, Texas has taken on the distribution of "Western" furnaces and air conditioners in Tyler and surrounding counties. Principals of the firm are Emmet Dixon and Ernest Caperton.

► **H. A. McRAE & Co., Inc.**, with headquarters at Troy, N. Y., will handle distribution of Gibson air conditioners in the Troy area. A. J. DuPont is president of the McRae firm, with R. Browd serving as sales manager.

► **TRYMAN DISTRIBUTORS, INC.**, 3205 W. Burleigh Ave., Milwaukee, Wis. will handle "Rex" water heaters for the Cleveland Heater Co. in the state of Wisconsin and the upper peninsula of Michigan.

► **MUSSUN EQUIPMENT CO.**, Cleveland wholesaler, will handle dual-duct air mixing equipment for Buensod-Stacey, Inc. With offices at 1735 Chester Ave., Mussun Equipment will serve Cleveland and the surrounding area.

ALUMINUM TURBINE VENTILATORS



LESLIE...

FIRST to offer Aluminum Turbine Ventilators at the same price as galvanized steel units. Rubber cushioned rotor suspension for quiet, vibration-free operation. Low head inertia and lifetime lubricated deep groove ball bearings assure positive exhaust under all conditions. All-aluminum—no maintenance. Also available in galvanized steel at same price.

LESLIE... LEADERS IN VENTILATION SINCE 1939



Write for Catalogs



LESLIE WELDING CO., INC.

2933 WEST CARROLL AVE., CHICAGO 12, ILL.



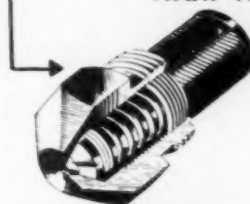
*I give Expert Service
and I use...*

APTHORP TRUE ALIGNMENT

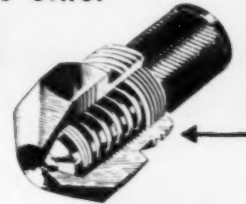
NOZZLES

BOTH ARE PERFECT

**but one may be BETTER
for a PARTICULAR BURNER
than the other**



HOLLOW SPRAY



SOLID SPRAY

Every burner has a certain air pattern that is governed by the design of its particular head. Either an Apthorp Hollow Spray or Solid Spray Nozzle will mate best with this air pattern. By use of the right type, CO₂ will increase from 2% to 4%.

"My Customers appreciate the DIFFERENCE!"

For details, write to:

**BOSTON MACHINE
WORKS COMPANY**

Oil Heating Supplies Div.
7-17 WILLOW STREET
LYNN, MASSACHUSETTS

Bond Insulation
PERMANENTLY with



ST. CLAIR
Specially Formulated
Insulation Adhesives

ST. CLAIR Insulation Adhesives provide excellent coverage, high heat resistance and easier handling of insulation which can be bonded immediately or up to 45 minutes after applying adhesive.

These insulation adhesives afford fine results for bonding insulation to ducts. They supersede pins and clips, wires, screws, and caps, because they save on installation cost while providing a better, neater and more permanent bond.

ST. CLAIR also produces clear and white adhesives for bonding lap seams on pipe insulation—also other adhesives for applying foil and vinyl facings to glass fibre.

Send for
Free
Sample &
Catalog



ST. CLAIR RUBBER CO.
440 E. JEFFERSON AVE. • DETROIT 26, MICHIGAN




DO ALL These Jobs
with ONE TOOL
SMITH'S
180° UNIVERSAL BRAKE



Smith's 180° Universal Brake is the answer to the need for one low cost tool that can handle a wide variety of bending and forming jobs with speed and accuracy. Designed to permit selective bending of portions of a workpiece without restriction, the Universal Brake's application and use is literally unlimited. It will handle 18 gauge mild steel 26" wide to 7 gauge 1¼" wide, at any angle, up to 180° in one operation. It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for illustrated circular and more details.

U.S. Patent No. 2,651,349

R. E. SMITH 1129 ELIZABETH AVENUE
WAUKEGAN, ILLINOIS

merchandising ideas

► THE AIRTEMP DIV., Chrysler Corp. has prepared a dealer promotional kit designed to serve new dealer-contractors by: 1) acquainting them with the value of organized merchandising activity; 2) familiarizing them with the specific merchandising tools supplied by the division; and 3) acquainting them with the recommended use of the materials and demonstrating how they can best be integrated to form a comprehensive, effective, economical promotional program.

Included in the kit are an indoor illuminated dealer sign, cloth emblems, decals, direct mail cards, ad mat book, retail presentation manual, customer presentation sheets, specification manual, and other sales aids.

► VICTOR R. ROCKEL SHEET METAL CO., St. Louis dealer-contractor, recently addressed letters to doctors in the area detailing the advantages of "Humid-spray" humidifiers. The letter urged that the doctor install a "Humidispray" in his own home and thus become personally acquainted with its high performance standards. It was then pointed out that if he should find it necessary to prescribe humidifying equipment for any of his patients, he would be in a position to specify a unit that he had himself found to be completely satisfactory.

► FOLLOWING A TWO AND A HALF YEAR SURVEY to determine new ways to increase sales in the steel market, U. S. Steel Corp. has launched a "new look" in its merchandising and advertising program. The campaign includes five major parts:

1. A new advertising theme emphasizing to the public that "today's steels lighten your work . . . brighten your leisure . . . widen your world."
2. A new label program which will be offered to manufacturers of consumer products to identify clearly all items made of steel.
3. A restyled USS trademark.
4. A uniform and streamlined identification program to enable the public to more clearly interrelate U. S. Steel with all of its divisions and subsidiaries.
5. A "steel plus" advertising program beamed at direct users of steel, featuring U. S. Steel's special marketing assistance to customers as well as its metallurgical, research and facilities services.

► A-P CONTROLS DIV. of Controls Co. of America offers an eight sided air conditioning valve display. Compact enough for use on counters, shelving or self-service racks, the display may also be suspended from the ceiling. It is printed in three colors, can be set up in just a few minutes.

► LIMA REGISTER CO. has prepared monthly memo calendars that show the dates of association meetings.

college short courses, trade shows and other events of the month. Extra space is provided for personal notes and scheduling of appointments.

► **GENERAL FILTERS, INC.** offers a show stand for displaying its Model 800 humidifier. A pocket built into the display holds literature illustrating and describing sales features.

► **TO PROMOTE THE SALE** of gutters and downspouts, the Roof Drainage Manufacturers Institute has prepared a news release to be sent to newspaper building page editors. The copy points out that during the last few years, in many areas of the country houses have been built without roof drainage equipment. The disadvantages of this lack are described and the home owner who doesn't have gutters or downspouts on his house is urged to "see a sheet metal contractor and obtain information in regard to installing this very important equipment."

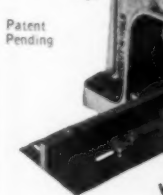
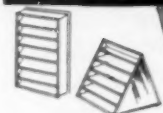
► **A COLLECTION PORTFOLIO** entitled "It's your Money" has been compiled by Charles P. Fitz-Patrick, Philadelphia. The collection plan is built around two letters designed to keep the customer's good will as well as obtain payment of his overdue account. Included is a page of billing suggestions designed to keep new customers from becoming delinquent.

► **THE BRYANT MFG. CO.** recently launched an "Indianapolis Speedway Contest" to stimulate sales of air conditioning equipment and water heaters. Winning dealer-contractors will be awarded expense-paid trips to the annual Indianapolis classic.

► **THEME OF THE JOHN WOOD CO.'s** marketing program for the sale of heating equipment and automatic water heaters is "Ac-SELL-erate in '58." The campaign encompasses several types of promotion assistance, including local newspaper, telephone directory and radio-TV advertising; floor, window and panel truck displays; direct mail; and a variety of merchandising aids and sales boosters. Designed to provide year 'round interest, the program calls for distribution of sales material at intervals throughout the year. G. K. Lentz, advertising manager, says that local sales aids will be backed up by a full program of company advertising in national trade magazines, consumer publications, and state association bulletins.

► **THE WILLIAMSON CO.** offers dealer-contractors a giant-size wall chart — 32 by 42 in. — illustrating "Seal-Tite" residential heating units in highboy, low-boy, counterflow and horizontal models. Also pictured are air cooled air conditioning units.

THE NEW BAR-BROOK BUT-N-HOLD* FASTENING MACHINE



... a money maker for any sheet metal shop!
Look what it will do for you!

MAKE LOUVERS

... regular or sight-tight, factory-smooth in 1/2 the time!

MAKE OTHER PRODUCTS

... ventilating hoods, turning vanes, ducts, structural members, etc.

MAKE COMPETITIVE JOBS PROFITABLE

... the secret is the rigid button-and-slot lock-joint fastening.

Write for Catalog and Details

BAR-BROOK MFG. CO., INC.

Box 6638-D

Shreveport, Louisiana

AN OPPORTUNITY FOR JOBBERS... WRITE US!

*Trade-Mark

NEW

heavy duty YEATS dollies
handles BIG, cumbersome units
amazingly easy! you ROLL - instead of lift it!

Ends backbreaking work handling big heating plants, air conditioners, water heaters, etc.

SAVES time doing it!

Now!—with this big, new dolly, ONE MAN can do the work of two or three, with even less effort. Specially designed for handling big, cumbersome equipment, this new Yeats dolly has such added features as two straps and ratchets, and two sets of wheels for rolling instead of lifting the load. Like all YEATS dollies, this big new model is so well balanced that ONE man can easily raise or lower a heavy unit. Its tough, featherlight aluminum alloy frame is completely padded in front — has smooth runners in back for easy on-off truck handling.

*4 wheels for horizontal rolling

Big heavy units are easily rolled-controlled by ONE man. Fast pressure on one end of the balanced design frame, permits easy turning by simply pivoting one set of wheels.



Endless ball, caterpillar type, STEP GUIDE permits handler to "run" the dolly on stone edges without lifting appliance or marring walls.

Two 30 second action, strap ratchets (to patented YEATS feature) fasten two heavy web straps on units in a vise tight, non-slip grip.

YEATS "Everlast" Covers available in all shapes & sizes

SEND postcard for full information on our complete line TODAY!

YEATS appliance dolly

sales company

2125 N. 12th St. MILWAUKEE 5, WISCONSIN

THARCO



ASBESTOS FURNACE CEMENT

Won't shrink, crack or check. Sold in black or light gray. One lb. cans up to 350 lb. drums.

DAP

BLACK-TITE Caulking Compound

Tough, asphalt-base for extra protection. Won't sag or crack. In cartridges or bulk for gun application.



DAP

CAULKING COMPOUND

Sticks tight—stays elastic for an air-tight, water-tight seal. Sold in cartridges and bulk.



Fine products by
**DICKS
ARMSTRONG
PONTIUS, Inc.**

General Offices:
DAYTON, OHIO

(formerly The Dicks-Pontius Co.
and The Armstrong Co.)

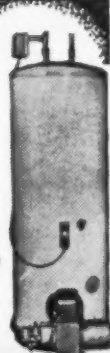
Call your Jobber or write us

Only- HI-RECOVERY QUIET AUTOMATIC OIL FIRED WATER HEATER

HAS A COMPLETE LINE OF

HI-RECOVERY® HOT WATER HEATERS

- **GLASS LINED** — 2 Sizes
30 gallon with 120 gallon hour recovery
50 gallon with 150 gallon hour recovery
- **COPPER LINED** — 2 Sizes
30 gallon with 120 gallon hour recovery
45 gallon with 180 gallon hour recovery
- **HI-TEST GALVANIZED**—A.S.M.E. labeled and built
30 gallon—35 gallon—and 44 gallon for
Motels, Apts., State and Government Jobs
- **TWIN-COIL JOBS**— up to 5,000 gallons an hour
for Laundrettes and Big Buildings



QUIET AUTOMATIC BURNER CORP.

MANUFACTURING ENGINEERS

33-35 Bloomfield Avenue • Newark 4, N. J.
CHICAGO OFFICE: 1005 W. Belmont Ave. Eastgate 2-6684

appointments . . .

► **DONALD W. DAVIS** as western sales manager of the Chicago Blower Corp. Mr. Davis will be responsible for the direction of the 35 Chicago Blower sales offices in the western two-thirds of the country. His headquarters will be at the home office in Franklin Park, Ill. Prior to joining Chicago Blower, he was employed in various sales capacities in the Sturtevant Div. of Westinghouse Electric Corp. for more than 15 years.



Donald W. Davis



M. Claude Schuler

► **M. CLAUDE SCHULER** as sales manager for Bostitch, Inc. Mr. Schuler was formerly manager of Bostitch-Atlanta, Inc., the company's branch office serving six southern states. Loren K. Grimes, previously manager of Bostitch-Baltimore, Inc., has been appointed product research manager. He will provide sales department advice to management in product improvement and the development of new products. Assisting Mr. Grimes as director of the national sales service supervisory program is W. Eric Hofer, a member of the factory sales staff since 1946. George G. Slade has been named sales training and promotion manager.

► **RALPH C. TERHUNE**, Ridgewood, N.J. as central regional manager of Bryant Mfg. Co. In his new position, Mr. Terhune will be responsible for sales of heating and air conditioning products in an area covering six states. His headquarters will be in Columbus, O.



Ralph C. Terhune



T. R. Brock

► **T. R. BROCK** as assistant sales manager for Temco, Inc. Mr. Brock, who has been associated with the firm since 1948, will also have the responsibility of managing the newly formed wholesale division, which serves dealers in the middle Tennessee area.

for
practically
every
use...

<p>PANEL FILTERS</p>  <p>Permanent. High Velocity. 1", 2" and 4" thick.</p>	<p>HP AFTER-FILTER</p>  <p>High efficiency at low initial and maintenance cost.</p>
<p>F/S FILTER</p>  <p>Low cost, permanent filter As" and 1 1/2" thicknesses.</p>	<p>ROLL-KLEEN</p>  <p>Automatic dry type filter.</p>
<p>GREASE ELIMINATOR</p>  <p>For kitchen grease hoods. One and two-sided.</p>	<p>SELF-WASHER</p>  <p>Completely automatic filter. Minimum maintenance.</p>
<p>D/C FILTER</p>  <p>Economical, permanent filter with replaceable media.</p>	<p>MICROLOC</p>  <p>Super- efficient filter.</p>

Write for complete information to
P. O. Box 45187, Airport Station, Los Angeles 45, California

FARR

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P U S H B U T T O N
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Color-coded pushbuttons put air velocity, air temperature and static pressure at your fingertips in the new Model 60 Anemotherm Air Meter. Developed by the Anemostat Corporation of America, this versatile, accurate instrument helps you balance and check any air system. It pays for itself through time saved on only one major job.

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3-WAY
CLAMP**



A necessary tool for every sheet metal man. Use it for on - the - job bending, forming, seaming, straightening.

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The Sliding Sleeve
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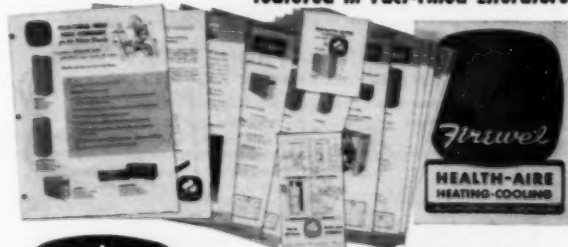
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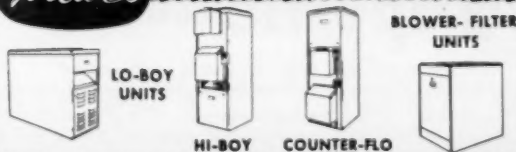
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The Firewel Company, Inc. 3689 Broadway, Buffalo 25, N.Y.

appointments

(Continued)

► **JAMES O. KYLE** as northern California district manager for the Metalbestos Div. of the William Wallace Co. Mr. Kyle has been a member of the northern California sales force since 1952. In his new position, he will direct sales in northern California and Nevada.



James O. Kyle



Carl W. Bell

► **CARL W. BELL** as district manager of the north central territory for the Lima Register Co. Mr. Bell's territory includes Wisconsin, Minnesota, Iowa, Missouri and Illinois.

► **WILLIAM PETERS** as manager of the New York City branch office of American Air Filter Co., Inc. Mr. Peters was previously assistant general sales manager for the Anemostat Corp. of America.

► **MICHAEL P. KOMAR** as general manager of sales for the newly formed engineered products sales division of Inland Steel Products Co. The division will handle sales of bonderized steel roof deck, metal trim, insulated wall panels and other products.

► **JOHN F. VANLANDEGHEM** as staff manager, sheet and strip, for Chase Brass & Copper Co. Mr. VanLandeghem, previously district manager of the Grand Rapids, Mich. sales office, succeeds John J. Vreeland, who has been appointed special consultant, heat exchanger sales. Robert Lea, formerly Indianapolis district manager, has been named Grand Rapids district manager. Succeeding Mr. Lea as Indianapolis district manager is Francis E. Zuber.

► **RICHARD E. JUNKINS** as assistant sales manager of the Keeney Mfg. Co.

► **GORDON T. REYNERTSON** as manager of the Thatcher Furnace Co.'s Chicago office and warehouse.

► **WILLIAM B. COTT** as northeastern regional manager for Westinghouse Electric Corp.'s air conditioning division. Mr. Cott's headquarters will be in New York City. He will be responsible for a region including the New York City factory branch and the sales territories now headquartered in Boston, Mass. and

Be prepared for **PROFITABLE BUSINESS...**

Warm weather is just around the corner and hundreds of thousands of heating plants will be shut down for the summer season. During the Spring and Summer of 1958 the cleaning of these furnaces will be big business. "Be prepared" to get your share of this profitable business. The requirements are simple: All you need is a service department, an expert crew and a GENERAL "GIANT" FURNACE CLEANER. The General "Giant" is the most powerful vacuum power cleaner in the furnace cleaning industry today. In addition, \$300 down starts you in business and earning \$100 or more a day.

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PROFITABLE
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Vaporite **AUTOMATIC HUMIDIFIERS**

14 models and sizes . . . installs in 30 minutes
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- Stronger mounted front-end thermostat
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- Completely adjustable drip valve
- Non-breakable evaporator plates
- Stainless steel pan

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AND FITTINGS,
Prefabricated Ducts,
also conductor pipe, eaves
trough, drip edge, rake strip, etc.**

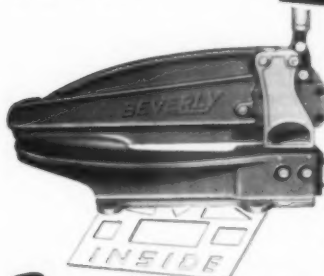
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Make any cut—curved, straight or irregular, faster, easier and better with less material waste on a Beverly Throatless Shear. You can turn work to any position and make a clean cut as you go. Handles heavy gauges with ease—lighter metals without distortion. 18 models—capacities 18 gauge to $\frac{1}{16}$ " mild.



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Ball Bearing
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Makes inside slotting cutting faster, easier, cleaner. Punch and die arrangement of 3 blades assures accuracy, clean cutting action. Cuts $2\frac{1}{2}$ " x $\frac{1}{8}$ " or $2\frac{1}{2}$ " x $\frac{1}{16}$ " slot at one stroke. Throat design permits pivoting work at any point in stroke for special inside cuts. Note sample cuts at left.

See your Beverly Dealer or write for illustrated catalog.

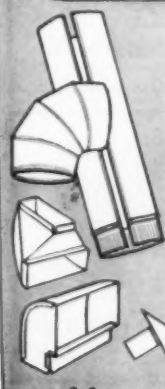
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You don't
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an electrical engineer
to install
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The time you spend trying to figure out complicated wiring diagrams and assembling a furnace on the job is time you can't recover—and it's money down the drain. But pre-wired and factory-assembled Armstrong furnaces eliminate nearly all these problems.

You can make top quality installations quickly and easily with Armstrong, because the burner and all the controls on Armstrong furnaces are mounted and wired at the factory. All you have to do is set the furnace in place, connect the fuel line, power line, flue pipe and air distribution system and you're ready to go.

You don't need a slide rule or an electrical engineering degree to make money as an Armstrong dealer... just the desire to do a good job, plus the know-how it takes to make a few simple connections. Call your Armstrong wholesaler today for the complete story.



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DIVISION OF NATIONAL UNION ELECTRIC CORPORATION
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Cost Less
Offer MORE!

E-Z-ON "Snap-Tite" Design No. 29



Special tail piece has retractable snap end bearing... eliminates need to bend damper or spring duct to insert damper.



You pay less and get more features with speedy E-Z-ON damper regulators, because they're design engineered to do a better job... quicker.

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all leading jobbers stock E-Z-ON
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If You Own A Pullman Vac, you need a Drum Adapter



Pullman
Furnace &
Boiler Vacs
Are First in
Sales Because
They Never
Clog

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- it adapts Pullman vac to 55 gallon capacity in seconds
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- it's ideal for industrial furnaces and boilers
- it means no repeated emptying, saves time
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HAND FOLDER

TRADE PRICE
\$7.50
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IT'S
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For Quick - Noet Drive Cheet Folds on 2 1/4" 3 1/4" 5" 6" and 8" Duct or Fittings - here's all you do...

IT'S PORTABLE!
Folds into small compact unit for tool kit or pocket.

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Maker of Duc-Pac Press Together Fittings

appointments

(Continued)

Hartford, Conn. Walter L. Hunken has been appointed middle Atlantic regional manager, with headquarters in Staunton, Va. Mr. Hunken has been with the firm since 1929.

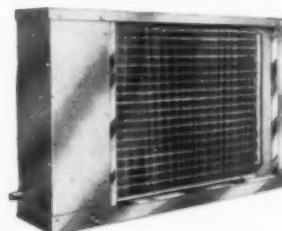
▶ **WARREN FITCH** as manager of the northeast sales zone for the Airtemp Div., Chrysler Corp. He will have headquarters in Leonia, N.J. Mr. Fitch, associated with the firm's sales division since 1947, was manager of the southeast zone just prior to his recent appointment. He is succeeded as southeast zone manager by W. L. Regan, who has been serving as supervisor of dealer development in the southeast.

▶ **LEONARD SMITH** as head of the newly formed industrial division of Wickford Products Inc. The new division will handle sales of the company's air conditioning and furnace filters to the air conditioning and heating fields.

▶ **EDWARD B. REYNOLDS** as New York regional sales manager for Olin Mathieson Chemical Corp., handling the sale of aluminum in New York, New Jersey and the New England states. Prior to joining Olin Mathieson, Mr. Reynolds was an assistant sales manager for the Aluminum Co. of Canada, Ltd.

Quick Delivery
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Horizontal Air
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Stock Sizes—
2, 3, 5, & 7.5 Ton



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Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

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CAPACITIES MILD STEEL

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NO. 7½: 1/4" thru 3/16"

NO. 8: 1/4" thru 1/4"

**NOS. 7 7½ 8 IMPÉRIAL
WHITNEY-JENSEN
LEVER PUNCHES**

PUNCH AND STRIP
INSIDE 90°

QUICK CHANGE
PUNCHES AND DIES

Write for BIG NEW CATALOG

WHITNEY METAL TOOL COMPANY
702 Forbes St., Rockford, Ill. Since 1910



"CORRECT PRACTICE in OIL HEATING"

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This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

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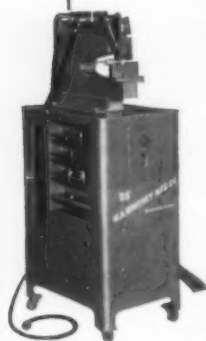


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WARM AIR CONTRACTORS
Go in for *Easier*
**FURNACE
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Come out with
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PERFORATED METALS FOR EVERY INDUSTRIAL USE

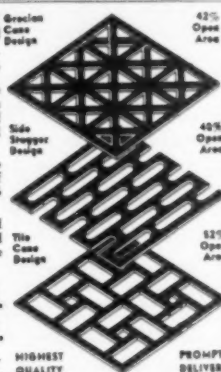
The "Ornamental" light-gauge designs here illustrated are only a few of the many you can choose from in our new Catalog 39 and we are always pleased to quote on original designs or special work of any kind.

For larger unit-openings, using metals up to 1/4" in thickness, we offer a wide variety of equally attractive designs in our Catalog 36 on Diamond Architectural Grilles.

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"CORRECT PRACTICE in OIL HEATING"

A complete reprint of the valuable series
by J. J. Mirabile

This special series covers every angle of oil burner work, including arrangement of shop . . . stocking parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner trouble that will serve as a reliable guide in making service calls. Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

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Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.

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For fastening slips or seams on ducts. Will push a "half moon" through 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.

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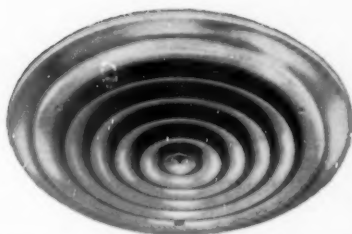

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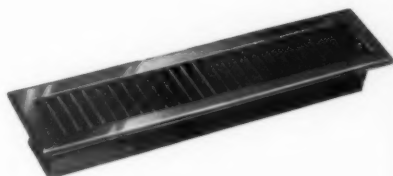
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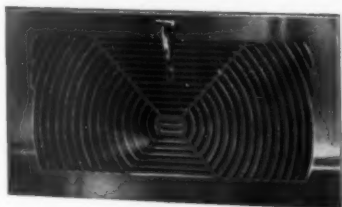
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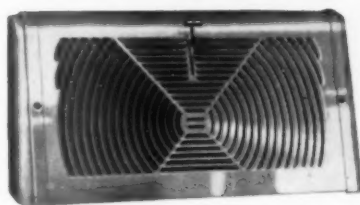
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